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EDITORIAL.

EUROPEAN CHRONICLES.

DECIDEDLY old Europe tries her best to imitate young America, but her attempts, good as they may be, are, *Dieu merci*, not as successful as they might be; and, indeed, if our thermometers struggle hard to reach the nineties of New York, if the sun pours its scorching rays over our perspiring foreheads and chases everybody out of town, yet there remains a great difference between New York and Paris; and, although once again sun-bonnets for horses, gaily ornamented with ribbons, have reappeared, scientific societies are still keeping open, but at the same time preparing for the general vacation.

To-day I was to the last meeting of the season of the Société de Médecine Veterinaire Pratique, as I would not miss the occasion of getting a good subject for this chronicle. On the programme was announced remarks from Prof. Nocard on tuberculosis. Our friends will remember that I have given them notice of a series of experiments which were to be made by the learned professor, to the effect of settling the question of the degree of virulency of both human and bovine tuberculosis. I was, however, disappointed. Prof. Nocard was not able to report, as the results could not be made known. The subjects on experiment are showing evidences of being infected, but to what extent cannot be said until post-mortems are made, which will

be in a very short time, most probably in time for my next.

At any rate, I do not think that they will vary much from what has already been observed by others. And among those I might mention the conclusions of Dr. A. De Yong, who contributes to the *Annales de Bruxelles* an article on comparative experiments upon the pathogeneous action on animals, especially those of bovine species, of the tuberculous bacilli of cattle and of man. The doctor has shown that (1) human tuberculous bacilli can produce tuberculosis in cattle; (2) that it can also produce it in all other domestic animals (sheep, goat, dog and monkey); (3) that tuberculosis given to those animals with human tuberculous bacilli is generally less serious than that produced by bacilli of bovine origin; (4) that consequently *it may be admitted that the bacillus of bovines possesses a superior virulency to that of human origin* [italics are mine]—this is what the experiments of Nocard will also prove; (5) that it cannot be accepted that the superiority of virulency of the human tuberculous bacilli so manifested in comparative experiments upon cattle, sheep, goat, dog and monkey, cannot be equally demonstrated for man; (6) that it follows that man, as a factor of tuberculous infection towards cattle, is of much less importance than cattle considered as a factor of infection for man; (7) and consequently, that to the human hygienic point of view, bovine tuberculosis deserves more attention than it has heretofore received.

* * *

"MEDICAL HEROISM."—Under this heading one of our French contemporaries considers the case of Dr. Garnault, who, I wrote you some time ago, had offered himself for experimental purposes to Prof. Koch. Dr. Garnault having failed to obtain what he desired from the German bacteriologist, and, notwithstanding the advice that was given to him, decided to take the matter in his own hands, and proceeded to inoculate himself.

On June 17 last, assisted by three physicians, the operation was performed by the doctor himself. The substance of a tu-

bercular bronchial gland, taken from a tuberculous cow, was crushed in a sterilized mortar, laid over the forearm, where it remained attached by a bandage for two hours, the skin of the forearm having been relieved of its epidermis on a small surface by the application of a little blister.

What are the chances of infection or no infection? Will the result be negative or not? Perhaps the Doctor is refractory to tuberculosis. So numerous are the individuals that live in surroundings absolutely contagious, and yet do not become tuberculous, and, again, this negative result would not prove that bovine tuberculosis is not transmissible to man. And there the question still remains, until Dr. G., according to his promise, renews, continues and modifies his modes of infection. . . .

Let us then wait, and until the time has come the number of medical heroes will not be increased.

* * *

DR. PHYSALIX'S ANTI-DISTEMPER SERUM.—I am somewhat embarrassed. While, if from what I have seen here, and from what I have read, I am rather inclined to object to the Physalix mode of vaccination against distemper, I cannot ignore the efforts made by the Doctor, throw altogether aside a method which certainly has some value, and, above all, when I have read the paper and studied the numerous statistics that are presented in the *Progrès Medical* of last month. Think of it: a record of 1250 cases, with the form of disease, complications, etc., etc., and which, according to the conclusions of the author, brings down the mortality to 2.4 per cent. instead of 25 to 80 per cent. Of course, in the report little allusion—almost none, is made to the cases of death which have not been recorded, and those that are not are certainly severe against the new treatment. Is it not better to wait a while rather than to take now a decisive position? I believe it is, as we are just now in possession of results obtained by that never-tired worker, Prof. Ligniéres.

Indeed, at one of the last seatings of the *Academie des Sciences*, a paper was presented by Dr. Roux, in his name,

upon the subject of vaccination against pasteurelloses, under which name a group of diseases of the same type, most of which belong to the old group of hæmorrhagic septicæmias, has been described, and among which we have the typhoid fever of horses, distemper of dogs, chicken cholera, hæmorrhagic septicæmia of sheep, cattle or swine.

From researches that Prof. Ligniéres has made since 1897, he has been convinced that those diseases might be prevented by a true inoculation, and in this direction he has worked. An important question was whether each special disease required its special pasteurella, or if, for instance, that of chicken cholera would be active towards that of typhoid fever or of ovine pasteurellose; or, again, whether it would be possible to use a common vaccine (polyvalent) in which would enter a great number of pasteurellas.

After having tested the ovine pasteurella, experiments were made as follows: (1) with a vaccine made by mixing several pasteurellas taken from sheep, affected with the natural disease, (2) a vaccine obtained with a single ovine pasteurella, (3) one prepared with one of the pasteurellas of bovine, canine, equine, porcine or aviary origin, (4) one which was made in mixing the pasteurellas of sheep, cattle, dog, horse, swine, and birds. The result was that this last vaccine of the six typical pasteurellas is truly a vaccine for all (polyvalent) and is applicable to all pasteurelloses indiscriminately.

Prof. Ligniéres cannot be considered as an enthusiast who may err by being carried away with the success of an idea. He has done his proofs, his work has been already appreciated; why not accept what he says? His mixed vaccine of six typical parteurellas is applicable to all pasteurelloses indiscriminately. We can now be pretty sure to have shortly not only the means to vaccinate dogs against distemper, but also all the other pasteurelloses with a vaccination having a real practical value. Let us wait!

* * *

I will close to-day with one word which I obtained from in-

formation I gathered from American origin, and which, I regret to say, has escaped the attention of my co-laborers in New York. I refer to the death of an old member of the faculty of the old American Veterinary College, which I read occurred in March last, that of Dr. O. D. Pomeroy. The students and graduates of the years when Dr. Pomeroy was connected with the college will no doubt regret his departure. Although not a veterinarian, he was much interested in the work of the college; he was always attentive to his duties; he was liked by all those who followed his lectures, and his old saying "*Catch on*," a conclusion after a delicate description, will always be pleasantly remembered. Dr. Pomeroy has done sufficient for the cause of veterinary education to deserve at least these few remarks.

A. L.

THE FALL VETERINARY CONVENTIONS.

The season for the annual meetings of the National and State veterinary medical associations is upon us, and the REVIEW congratulates the profession of the country on the prospects for populous and profitable gatherings in all quarters, as associational interest was never more acute than at the present time.

The American Veterinary Medical Association, which convenes on the 2d inst. at Minneapolis, Minn., gives promise by every method of anticipating a coming event of being the best from all points of view of any ever held by this organization. The full programme was published in the REVIEW for August, and a very attractive one it was. We here simply wish to say to our readers that the picture there drawn will be as nearly reproduced in the October number as we are capable of doing in the space which can be devoted to it, and that will be very liberal, for we will increase the size of that issue by many pages for that especial purpose. In the meantime, several hundred copies of the present number will be forwarded to Minneapolis, and each member and visitor will be supplied with one, so that the journey homeward may be rendered less tedious by the opportunity

to read and digest its splendid contents—the joint contribution of thinking veterinarians in various parts of the world. Its readers, who from one cause or another are prevented from attending, may rest assured that they will get the next best thing—a faithful story of the most salient features of this great gathering of veterinarians.

The New York State Veterinary Medical Society will meet this year in Brooklyn, on Sept. 9 and 10, the week following the National Association, and elsewhere will be found the programme in full. There is certainly material for every professional man in the State, and all signs point to the best meeting in the history of this society, and that is saying a great deal when the last two meetings at Ithaca are recalled. While the literary programme is not very extensive in number of papers to be presented, the quality is of a high order, which is much more desirable than quantity, and the very extensive and important clinic will probably surpass in interest any that has ever been held—not in the rare and difficult operations, which are more classical than practical—but those every-day procedures which are a part of every veterinarian's regular routine, together with demonstrations in the manipulation of improved apparatus for confining, casting and treating surgical cases. One of the good reasons why it is fortunate that the number of papers is limited is that the last one appearing on the programme is entitled "The Enforcement of Our Veterinary Laws," and we trust that the members will discuss exhaustively this very important subject, as the State is being rapidly overrun by men who have no right to practice in the commonwealth. If this were the only number on the programme for 1902 there would be ample material for earnest work in devising some substantial means of ridding the State of those who have taken their places here through freedom from prosecution, and in preventing others from following their example. Dr. Kelly, the author of the paper in question, has had a large experience in legislative matters, is thoroughly familiar with the situation, and is as competent to speak upon this subject as

any man in the State. We hope that the veterinarians in all sections will be in attendance to discuss this subject, so that there may be a concerted action in every county to accomplish some real good. Every member, and every qualified veterinarian in New York owes it as a duty to his profession and himself to be in Brooklyn on September 9 and 10.

Pennsylvania's great State Association will also be in semi-annual session in the week following the A. V. M. A., and her meetings are always occasions of great professional interest, not only to the veterinarians of the Keystone State, but to those of the whole country.

The Missouri Veterinary Medical Association has already held its eleventh annual meeting, which occurred at St. Louis on the 18th and 19th ult., and we are informed that it was a most valuable one, the papers presented being of a high order and quite numerous, while the clinic was most interesting and instructive.

Many other meetings will mark the advent of early autumn, and the REVIEW congratulates the profession on the very satisfactory state of veterinary progress as evidenced by these "signs of the times."

HOW AN M. D. ACTED AS A VETERINARIAN.—A farmer correspondent of the *Breeder's Gazette* includes the following story in a letter relating to "afterbirths": . . . "A neighbor had a very fine cow drop a very fine calf yesterday evening. On finding this morning that she had retained the placenta a physician was called in who sets himself up as a midwife. He set to work to remove the afterbirth I think at least thirty-six hours before it should have been attempted, and not knowing the first principle involved, he must have pulled at the cotyledons (instead of trying to peel them off) until he turned the womb wrong-side out and into the world. Then a runner was sent for a near neighbor of mine, who was known to be good at such work, and as he and I had worked together somewhat I volunteered to go with him, but before we got there the would-be doctor told them 'the cow would die anyhow,' and he cut the whole organ off. When we arrived the cow was dead, sure enough." . . .

ORIGINAL ARTICLES.

THE LIVING AND THE DEAD:

REMINISCENCES OF THE VETERINARY PRACTITIONERS OF FORTY YEARS AGO.

By One of Them.

(*Continued from page 404.*)

E. F. THAYER, M. D., V. S.

Of this worthy man, who by his own energy and his love for study, raised himself to be one of highest authority on veterinary medicine in Massachusetts, nothing can be said beyond what is written in the obituaries that we find in the periodicals of the profession.*

When we knew E. F. Thayer, he was already somewhat advanced in years, and the few times we had the opportunity to meet him—first at the Astor House gathering and later in New York or in Boston at the various semi-annual meetings of the U. S. V. M. A.—were always for us occasions of great pleasure. Besides all his good qualities of cordiality and friendship, the fact of his having been the first veterinarian to make a correct diagnosis of contagious pleuro-pneumonia in his State and to succeed in stamping it out forever from Massachusetts, is sufficient to give him a place among the first and most regretted pioneers of veterinary medicine in the United States.

* * *

C. M. WOOD, V. S.

When the delegations from Massachusetts came to New York at the meeting of organization of the United States Veterinary Medical Association, one of the delegates registered his name as Charles M. Wood, V. S., of Boston. He was a tall gentleman, Scotchman-like, full of activity, and from the start appeared as

* Am. Vet. Review, Vol. XIII, p. 285.

conceited. Yet, he had a kind and genuine conversation which seemed to imply a strong desire to make good friends. We know very little of him. He had a certain reputation ; had been connected with the attempt made by Mr. Dadd to establish the Boston Veterinary School, and we found him from the start ready for discussion, arguing for the sake of argument, supporting an opinion at one time to fight it but shortly afterwards. Was it evidence of solid knowledge or a desire to make himself conspicuous ?

An old acquaintance of his has furnished us with the following sketch, which describes him more thoroughly and with more justice : " I have known C. M. Wood from the time I was a boy, more particularly during the years 1860-61, when I rode with him and studied with him. He was a great student, and during the time I knew him best, he was usually to be found at home studying when not attending to business.

" He came here from England, was entirely self educated, and it was a great credit to him, for his education was thorough. It had been with him a constant tread-mill of application, backed by a capacity for the proper requisition of knowledge of a professional character, which enabled him to become proficient in the details of the profession.

" I cannot speak too strongly of the untiring efforts, the bull-dog tenacity of purpose which carried him through a task, which few men would have accomplished one-half as well as he did. He had the ambition and the laudable desire to become more than an automaton, practicing a profession in a stereotyped hum-drum sort of way, for a stipend, more or less.

" His aim and motto was ' Excelsior.' But there were other sides to his character and development as a veterinarian, and particularly as a practitioner. I must speak the truth.

" In treating acute forms of diseases of the internal organs, he was a failure ; and he was dogmatic and authoritative in regard to the choice and method of administering medicine as one could be. He knew Percival's treatment and some other

medicine of similar character; he did not want to know any other.

"He was brusque, antagonistic, and as aggressive as one could be. The results could not be otherwise than unfortunate to an individual having such traits of character. He was constantly in hot water and had but a few associates. Many of those were unfriendly toward him, but he never yielded or ran away.

"His practice was quite limited, as compared with what it might have been, if he had had a little more elasticity. But wherever he went or whatever he did, it was with unbroken ranks; you might break his sword or disarm him, but you would not conquer him."

This is a severe judgment, which our correspondent has given us, and yet from what little relations we or his colleagues had with him, whether as President of the Association or at the meetings, those who remember him will say that it is not exaggerated.

He had an office in the stable of Josh Seward, on School Street, Boston, Mass., where the Parker House now stands. Josh was an original genius and full of frolic. Wood enjoyed a joke when he was not the victim, but on the whole was not more unforgiving than the average man. He had a medicine chest in a little room over the office, and among other things this chest contained a number of cathartic balls, made according to Morton's formula. They were quite soft and he used from ten to forty of them when any one else would use one. One day Josh took the balls out of the box and replaced them with pieces of sausages done up to closely imitate them. The next day he asked Wood to give "Dandy" (one of his horses) a ball, which he proceeded to do. After twenty-four hours, no response. Josh said, "Give him another." After twenty-four hours more, "Give him another," Josh said. Wood rolled up his sleeve and was about to give him another, when Josh seized his arm and took the ball, and opened it to show it to Wood, exclaiming that he "thought it bad enough to have his horses get Wood's

regular medicine, without giving them sausages." On the same day it was said that Wood made a mistake in giving the wrong horse one of these balls, in another stable, and the horse died suddenly that night, from some other cause, which affair caused a good deal of comment and many a laugh at Wood's expense.

* * *

ROBERT WOOD, V. S.

Brother of Charles M.,—he was for all of us only his brother by birth, for physically and in general appearance they were not. Robert was of smaller stature, and as noisy and restless as his older relation appeared quiet, and, yet, although of a somewhat cool and at first sight distant disposition, when once you knew him he proved to be a man of a general all-around character, amiable and friendly.

Robert was a fair student, and had a capacity for the proper gathering and storing of useful knowledge. He reasoned better than his brother, was deeper and more analytical, while Charles leaned more toward the synthetical.

What he learned, it paid him to learn it—what Charles learned was a pleasure and a gratification without regard to cost or effort or whether he could make profitable use of it.

At our meetings, Robert was willing to discuss, and it was a pleasure to reason with him; contrary to his brother, he could be convinced; Charles, hardly ever.

Robert Wood had no special hobby to ride; he was a good friend, an all-around useful man of far more than excellent ability. A good practitioner, unfortunately, like many among us, not possessed of extra-developed commercial capacity, and yet he managed to be quite a successful business man.

Like his brother, he had been President of the Association, and was a good worker in its behalf. Like most of the veterinarians practicing in Massachusetts in those days, Robert was anxious and ready to do all he could in behalf of his profession.

Robert Wood one day invited the father of Dan Walton (a celebrated trainer of trotters in those days) to go with him to

dinner at his house. When they arrived there Mrs. Wood had "company," two old and very precise females, who were also to stay to dinner. Robert Wood took Walton out into the wood-shed and they had a drink, which would do for ceremony; but Wood was afraid that Walton would make use of some expressions at the table which would shock the ladies. Walton could draw the line between the ludicrous and the indecent as finely as any man. He promised, however, not to offend, but to speak and act as "genteel" as he knew how. Wood served the dinner, the ladies first, then Walton and himself. Things were going along smoothly, when Walton, who had spoken and acted under restraint, said in his ordinary loud tone: "Well, Doctor, there's what I call a good potato! In about every place that I have dined this season, the potatoes have tasted like a box of itch ointment." Robert Wood enjoyed telling this story, and he said all the ladies appreciated it properly and never forgot it. At first they were somewhat dazed, but upon a second thought, they laughed long and loud.

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WILLIAM SAUNDERS.

Towards the end of a very hot day, William Saunders, whose "circuit" was quite a long one any day, stopped his team at Frank Codlidge's farm-house in Brighton, and, after looking at a case, he was invited by Frank to have a glass of cider. "Its nice and cold, and it will do you good," he said. "Wait, now, and I will bring it up from the cellar." Instead of cider, he brought up a large glass of currant wine, which was quite old and "alcoholish." Saunders drank it and said he had never had so pleasant and refreshing a drink. Down cellar again went Frank and brought another glass, which, after some little urging, Saunders emptied again, and lighting a cigar, bid good-bye and started to drive home. Saunders rarely drank any liquor, and Frank knew it. He reckoned the Doctor would feel the second glass, but resolved he would see for himself. So he hitched up a horse into a buggy and drove so as to go by a shorter route than the Doctor would take, and

arrived first at the American stables, where the Doctor's office was located. He got out of his carriage and hid behind it just as the Doctor drove in. Well, he had "responded to the medicine," as he said himself, he "had been blind all the way, in five minutes after leaving Frank's house." It was necessary for two men to help him out of his wagon, and then he had no legs. He saw Frank grinning at him, and said: "Damn you, Frank, if I could stand, I would try to put you in that horse trough."

The day was afterwards referred to as "Saunders' Buena Vista and 4th of July." They laid the doctor down on some blankets for a couple of hours, and then took him to the depot to take the train for Salem, where he lived.

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APPENDIX.

In the preceding pages I have recalled, with two exceptions only, reminiscences of some of the veterinarians who lived forty years ago and were present at the meeting at the Astor House in 1863.

But others were there also. Unfortunately, I was less familiar or less intimate with them.

E. Ripley, V. S., of Maine; *G. Penniman, Sr., V. S.*, of Worcester; *Robert Saunders, V. S.*, of Salem; *W. E. Wisdom, V. S.*, of Wilmington, Del.; and those two excellent friends, *J. B. Rayner, V. S.*, and *Thomas B. Rayner, V. S.*, both of Pennsylvania.

Of all, my recollections are as pleasant and friendly as with those of whom I have spoken in the preceding pages; and yet I must leave to others better acquainted with them, the task of speaking of them.

There were other veterinarians also in those days practicing in New York: *W. Lockhart, M. R. C. V. S. E.*, who, I believe, never laughed, and was as stiff and freezing in his relations as his brother, *Alex. Lockhart, M. R. C. V. S. L.*, was friendly and congenial; *C. Pilgrim, M. R. C. V. S. L.*, who let the celebrated

trotter George M. Patchen die with strangulated inguinal hernia, which he had failed to reduce; *W.Dixon, V. S.*, who commanded the largest sporting practice of New York State, and invented (??) the wonderful condition powder sold yet, and *E. Nostrand, V. S.*

None of these latter veterinarians belonged to the U. S. V. M. A.

THE END.

JUST A SAMPLE OF MANY SUCH TALES.—A big Newfoundland dog fought off a burglar Thursday night and prevented the robbing of the home of J. S. Hynes at 712 Ann Avenue, in Kansas City, Kas. Mr. Hynes is city manager for the Kaw Valley Coal & Lime company. He is a member of the Fraternal Order of Eagles. Thursday night he attended a meeting of that order, leaving Mrs. Hynes and their two children at home with the dog "Sport," on watch in the hall. At about 12 o'clock Mrs. Hynes, who had retired to her chamber on the second floor, heard someone insert a key in the lock of the front hall door. She thought it was her husband coming home and arose, intent on going to the head of the stairs to call to him. She changed her mind, however, when she heard the door open gently and a soft foot fall in the hallway; for a moment thereafter there was a noise that made her blood run cold. The faithful dog sprang upon the burglar. There was a scuffle below, which lasted fully five minutes, accompanied by calls for help from the intruder, heightened now and then by the noise of smashing pieces of furniture, and finally ending with a crash of broken glass. The burglar, finding it impossible to open the door which he had closed, sprang through the glass, carrying sash and all with him, the dog following in hot pursuit. Fifteen or twenty minutes later Mr. Hynes returned home. He stumbled over a pile of broken glass on his porch and on entering the hall was greeted with a sorrowful whine from his dog. He started upstairs to see his wife, but tripped and fell over a piece of broken balustrade. Then he lighted the gas and to his amazement found everything in the hallway in disorder and a blood stream on the floor. Upstairs he found Mrs. Hynes, crouching beside her sleeping children in fear and trembling. She succeeded, finally, in telling how it all happened. There is one dog in Kansas City, Kas., which no amount of money can buy, and he is owned by Mr. Hynes.—(*Kansas City Star, Aug. 16.*)

RINDERPEST IN SOUTH AFRICA.

CONDENSED REPORT OF THE PROCEEDINGS OF THE INTERNATIONAL RINDERPEST CONGRESS, HELD AT PRETORIA, S. A., AUGUST, 1897.

TRANSLATED AND CONDENSED FROM PROCEEDINGS OF THE CONGRESS BY JOHN M. PARKER, D. V. S. (McGILL), ATTACHED A. V. D., REMOUNT DEPOT, WORCESTER, C. C., S. A.

At the Congress representatives were present from Orange Free State, Cape Colony, Natal, Transvaal and Portuguese and German possessions.

Among other matters, the different methods of controlling rinderpest were discussed. Dr. Theiler, the Transvaal Veterinarian, reported on the various methods of preventive inoculation.

"For a long while," he said, "many people have been convinced that the only practical method of treatment consisted of preventive inoculation; in other words, to 'salt the cattle artificially.' Primitive methods of obtaining this result have long been employed by the farmer; one of the earliest was to smear the nostrils of the animal with dung from infected cattle. Gradually injections of blood and serum were substituted, but the results were unsatisfactory, the poor results being probably due to the fact that the virus of rinderpest has since been found to be very susceptible to light and heat, two hours' exposure to sunlight completely destroying its virulence. The result, of course, was that the inoculations produced only slight immunity. In other words, the cattle were not properly 'salted'."

Dr. Theiler then referred to Koch's method of inoculation. This method consists in the inoculation of sound cattle with 10 c.c. bile taken from an animal that has just died from rinderpest. The amount of bile to be injected was fixed in the following manner: When sound animals are injected with 1, 2, 3, 4, 5, or 10 c.c. of bile from a rinderpest animal, and when ten days later these same animals are inoculated with 0.2 c.c. of serum, the animals receiving less than 10 c.c. of bile become

sick; those receiving 5 c.c. or more recovered, and can be looked upon as "salted." This immunity, according to Dr. Koch, is of such a nature that after four weeks the animals could resist 40 c.c. pest blood without any trouble.

When several animals are injected with 10 c.c. of bile, and afterwards each animal in turn, at intervals of two days, is inoculated with pest blood (that is to say, an animal is inoculated the 2d, the 4th, the 6th, the 8th, and the 10th day respectively) it has been found that animals inoculated before the fourth day died from rinderpest, those inoculated four days after recovered, and those inoculated six days after were unaffected—*they were immune;* the salting process thus evidently taking place between the fourth and sixth days.

After the bile injection there is usually a local swelling at the point of inoculation.

It would be interesting to know whether the amount of swelling present has any relation to the "salting" process; that is to say, whether the amount or presence of the swelling indicates whether the animal has been salted or not.

As a result of the discussion following the reading of this paper, the following conclusions were adopted:

I. When used as recommended, bile does immunize cattle and *does not cause rinderpest.*

II. Immunity begins from the sixth day and increases from the tenth day.

III. Animals are not protected by the vaccine during the first few days following the bile injection. For this reason when an infected herd is inoculated new cases will crop out up to the twelfth day.

IV. When animals contract the disease *soon* after the inoculation they are more liable to die than when the symptoms appear later.

Dr. Turner, Natal Government Veterinarian, in referring to Koch's method, said that he was satisfied of its success. He believed that Koch preferred the bile injection to serum because of its more lasting effects; serum was not only less active, but

it was also uncertain and inconstant in its action. Of course, it is not fair to take bile from animals found dead, because in that case the bile will frequently be in a state of putrifaction and useless for inoculation purposes. In such a case it is better to use blood serum for inoculation.

The most favorable time to take bile is from the sixth to the seventh day of the fever. The temperature of the inoculated animal from which bile is to be procured must always be taken every morning and the days counted from the moment the temperature begins to rise. The dose of infected blood from an infected animal must be moderate and should not exceed 1 c.c.

Some persons thought that inoculated or vaccinated animals could spread the disease; this fear was groundless; an animal vaccinated with bile could mix with impunity with unprotected animals without producing the disease. After animals have been inoculated with bile they are still liable to contract the disease until the end of the sixth day or even of the seventh or eighth day. So that when a herd became infected, after inoculation and before the seventh or eighth day, the bile inoculation was often undeservedly blamed for the introduction of the disease. For example, a herd of 133 animals, after being exposed to infection, were injected with bile on May 9. All of the animals became sick and 100 died. Fortunately it was known that on May 5 one of the animals in this herd had died from rinderpest, showing that this herd was infected before it was injected; but if the injection had taken place on the 1st, instead of the 9th of May, it is almost a certainty that the bile injection would have been blamed for the outbreak.

Repeated experiments have shown that it is not till ten days have elapsed that the animals become immune; after ten days have elapsed the inoculated animals do not become infected either by injection or by actual contact with diseased animals.

Unfortunately, immunity after bile injection *is not lasting;* experience has shown that while the period of time varies, yet it cannot be considered to protect the animals for more than three or four months. Fortunately, however, after an animal

has once been inoculated the disease takes only a mild form and the animal usually recovers.

Dr. Turner then reported the case of a herd of cattle inoculated with bile injections. Four months after inoculation they began to develop symptoms of rinderpest; the number of cases kept increasing, and each animal was then injected with 30 c.c. defibrinated blood from salted cattle; from that time only one more animal became sick and none died.

In discussing bile and glycerine injections, known as the Edington method, Turner claimed to have better results and longer immunity with pure bile than with the bile and glycerine mixture.

In a communication to Dr. Turner, Edington briefly describes the glycerine method as follows. He says: "Here we use all kinds of bile for glycerinated bile; it does not matter whether the animal is only sick, or dead, or killed at the end of the period of relapse. Of course when putrifaction has set in the bile is not used. The bile is mixed with glycerine in proportion of 2 to 1. The bile is all mixed together and it should only be used after eight or more days have elapsed after mixing." "Ten days after the glycerine and bile injections the animal should receive an injection of 0.2 c.c. defibrinated blood." "Good results are obtained if we mix one ounce defibrinated pest blood with one-fourth flask sterilized water." "The results from this method were good. Ten animals inoculated with bile and afterwards injected with defibrinated pest blood, with one exception, all withstood the disease. Twenty-four animals were inoculated by this method at Kimberly; no deaths resulted; some of these received 5 c.c. pest blood, with no bad result. 125 animals were inoculated by this method at Belmont; no deaths. Similar results followed the inoculation of 60 animals at another farm."

Dr. Turner dissented from Edington in the advisability of using glycerinated bile; he preferred pure fresh bile.

An important discussion then arose as to the possibility of the infection of a clean herd through bile injection, many farm-

ers objecting to the inoculation because of the fear of introducing the disease into districts and farms where it had not previously existed.

The best opinion seemed to be that most of the unfavorable results were due to carelessness on the part of those entrusted with the work of inoculation. When rinderpest appears after the bile injection, it is not a result of the influence of the bile itself, but it is an infection of the animal by contact during the operation, and is due either to carelessness or ignorance on the part of the operator.

Previous to the application of the Koch method, 85 per cent. of the cattle died. In consequence of the introduction of the Koch method, only 10 per cent. now die.

The following resolutions on the Koch method were then passed by the Congress:

I. Bile acts as a mitigating virus, a vaccine that is able in the majority of cases to give a certain, but temporary, immunity.

II. After bile injection it is possible for cattle to contract the disease with fatal results. The circumstances that excite the appearance of the pest infection are not yet clearly determined.

III. Bile cannot be said to protect the animals effectually from rinderpest, but inoculation with bile is able to delay the appearance of an epidemic in districts where it has not yet appeared, and when applied under these circumstances it does important service.

Later it was resolved that:—

"Animals injected by the Koch method and exposed to rinderpest four or five months afterwards are not immune, but when they do contract the disease, it usually appears in a mild form and the percentage of deaths is not usually greater than 5 to 15 per cent."

* * *

INOCULATION WITH PEST BLOOD.

Report by Drs. Dantzig and Theiler to the Transvaal Government, 1897.

The first and most important point to consider is, at what

time the blood of salted cattle is in the best condition for immunizing purposes.

Experience has shown that soon after recovery from rinderpest the blood begins to acquire its protective qualities, and that the greatest power is attained from six weeks to two months after recovery. It retains this power unchanged till the fifth or sixth month, when it deteriorates. So that it possesses its most active protective properties between the second and fourth months after recovery, and it is at this time that it is most suitable for purposes of inoculation.

The most efficient blood is to be had from animals that have been most seriously sick, and this protective quality can be further increased by inoculating these already salted cattle, with pest blood from other salted animals.

Hitherto one of the difficulties has been to secure sufficient blood from salted cattle, but this difficulty is easily overcome when the blood of artificially salted cattle is used, and by submitting the salted animals to successive injections of pest blood, we are able to get a blood that has great protective qualities.

In using the blood to protect a herd exposed to infection, the *first* injection should be made immediately after exposure to disease. The second inoculation should be made five or six days later, or at the end of the period of incubation. If postponed till later the inoculation would not have as good an effect, as infection would be too far advanced.

The immunity conferred by salted cattle is only temporary. *In order to acquire lasting and powerful resistance, the inoculated animal must contract at least a slight amount of disease.*

The following experimental work was carried out under the direction of the Transvaal Government :—

I. At Field Coronet, A. Botha's farm : (*a*) Five animals were selected. One calf was injected with blood of cow salted three months previously and twice afterwards injected with pest blood.

Two small oxen injected with 8 c.c. blood from a cow twice injected previously with pest blood.

Two large oxen injected with 10 c.c. blood from above cow.

All these animals are found to be salted.

(*b*) Eighty animals first injected with bile, then each received two injections of 100 c.c. blood from three oxen salted three months previously and afterwards receiving pest blood injections.

All these animals were found to be salted.

The disease appeared fifteen days after the herd was inoculated with the bile. At the time of the inoculation with blood from the salted cattle, which followed the first bile inoculation, 56 of the 150 oxen which had received the bile inoculation were dead, a number were ill and new cases were occurring daily.

After the remaining animals had received two injections of the blood of salted cattle *no more deaths occurred.*

II. Sixty-five cattle belonging to Paul Kruger and Prinsloo were twice inoculated at an interval of six days with 100 c.c. blood. For the first inoculation blood of old salted cattle was used. For the second inoculation blood of two oxen, inoculated two months previously with pest blood, was used. All these animals were more or less seriously ill. Five calves died, the remaining 60 all became salted. It is interesting to notice that the five that died became sick between 15 and 20 days after inoculation, the others between 8 and 15 days after inoculation.

III. Ten oxen belonging to the same owners, inoculated only once with 100 c.c. blood from an animal inoculated two months previously. Of the ten inoculated 5 became salted and 5 died.

V. Seven animals inoculated—six with two successive inoculations of 100 c.c. and one with only one injection of 100 c.c. blood from an animal inoculated two months previously with proved pest blood. The ox receiving the single injection died; the others recovered and became salted.

VI. Thirty animals all suffering from rinderpest received a single injection of 100 c.c. blood from an ox salted two months previously and proved with pest blood. Of these 30 animals, 20 died and 10 recovered.

VII. Seventy head of cattle inoculated with bile; the disease appeared twelve days later. On the appearance of the disease, when all the animals were more or less sick, they were inoculated three times at intervals of eight days with blood from oxen salted three months previously. Of the 70 animals inoculated, 9 died and 61 became salted.

IX. Two sick oxen, one of which was seriously sick, received, the one 600 c.c., the other 200 c.c. blood of a salted animal. Both animals recovered.

Experiments made on some thousands of animals have shown that if properly applied before the disease appears, from 80 to 90% of animals will recover, if inoculated with blood from properly salted cattle.

In preparing an animal for salting purposes about two months are required. An ox properly prepared, after three or four months, will give a sufficient quantity of defibrinated blood to inoculate 25 head of cattle every 14 days for two months. So that in two months' time the defibrinated blood from a well prepared ox will be sufficient to inoculate 100 head of cattle, each of whom in the two months following its salting will in turn produce sufficient blood to inoculate 100 more. So that in about six months' time an almost unlimited quantity of pest blood could be procured.

* * *

The following points were then agreed on by the Congress:—

I. Blood, taken from animals that have withstood the disease for ten days after the temperature falls, can still be virulent blood.

II. When an animal has become salted the greatest protective power is developed about two months after inoculation. This power remains about the same for two or three months, when it gradually weakens; so that in about ten months the blood has only a very weak salting power.

III. Repeated injections of pest blood increases the protective power of the blood of salted cattle, and one dose of, say, 40 c.c. defibrinated blood from a well-prepared animal, may be

more efficacious than 400 or 500 c.c. of blood taken from an animal badly prepared.

IV. When animals that have recovered *naturally* from an attack of rinderpest are inoculated with virulent pest blood, there is rarely any perceptible thermic reaction. On the other hand, the injection of pest blood to artificially cured cattle will almost always result in the characteristic temperature reaction.

V. The passive immunity given to cattle by the injection of blood from old salted cattle is of short duration (10 to 20 days) and becomes daily weaker.

VI. According to the results communicated by the Rinderpest Committee of the South African Republic, sound animals receiving two injections of 100 c.c. blood from well salted cattle, at six days' interval, become sick after the first injection, and of these, 90% recover.

VII. The injection of strong defibrinated blood from salted and well prepared cattle is a preventive, and even fiercely attacked cattle recover.

VIII. The immunity produced in animals treated in this way is an efficacious and lasting immunity.

The Congress were also agreed "That animals first treated with bile and that afterwards developed rinderpest, recovered more easily under the influence of curative blood than animals that underwent no previous inoculation."

In employing the bile method the following points should be observed:

I. Bile may be obtained from cattle dying of rinderpest, whether caused by inoculation or acquired naturally.

II. The bile must be procured only from recently deceased animals, from those whose sickness has not lasted more than seven days, or from those killed while in *articulo mortis*. No bile should be used that has the least smell of putrifaction.

III. To procure a sufficient supply of bile, the establishment of stations is recommended where cattle could be inoculated with pest blood. After inoculation the temperature of these cattle should be taken daily. The bile should be pro-

cured six days after the commencement of the fever or ten days after injection.

IV. Color of bile is of little consequence, but care should be taken that no blood gets into the bile secured.

V. Bile must be kept in a cool place and at least 48 hours should elapse before it can be used.

VI. The flask or vessel receiving the bile must be thoroughly washed and rendered aseptic before being used; after being filled the outside of the flask or vessel should be again disinfected.

VII. As a precautionary measure it is advisable that persons making the post-mortem and securing the bile or who in anyway come in contact with the diseased animals should *not* be present at the inoculation of the sound animals with bile.

VIII. The different biles to be used for one herd should before use be thoroughly mixed in one vessel, so as to secure uniformity in the character of bile injected.

IX. Animals becoming sick after the bile injection, can be inoculated with defibrinated blood from salted cattle with good results.

* * *

In August, 1901, rinderpest having broken out in the Orange River Colony and Basutoland, and extended to the borders of Cape Colony, the Agricultural Department in Cape Colony published a pamphlet to the farmers on the subject. This pamphlet included an extract from the Government Veterinary Surgeon of Cape Colony, who after the outbreaks of 1896 and 1898 wrote as follows:—

"The method of inoculation which I would recommend in future sporadic outbreaks of the disease is briefly as follows:—

"*Infected Herds.*—These should be inoculated at once with either serum or glycerinated bile; every animal which indicates infection by a rise of temperature should receive a large dose of not less than 100 c.c. of serum, or 30 c.c. of glycerinated bile; the latter should by preference be injected into the jugular vein, so as to secure its immediate action. Then from eight to twelve

days after all the animals in the herd, which give no indication of being infected with the disease, or fever temperature, should receive an injection of pure bile; not less than 10 c.c., and for large animals 20 c.c. This will confer a lasting immunity sufficient for all practical purposes.

"*Clean Herds.*—When it is decided to inoculate a clean herd, which is in danger of becoming infected through its proximity to diseased cattle, I would recommend that the animals composing the herd should be inoculated with 20 c.c. of glycerinated bile, and to follow this inoculation in from eight to twelve days with an injection of from 10 to 20 c.c. pure bile. This will confer a strong and lasting immunity on the animals in the herd, and will be free from risk arising from the inoculation, or of introducing the disease.

"*Pure Bile.*—Pure bile should not be used in an infected herd, if any of the other inoculating materials can be obtained, as it tends to intensify the character of the disease in those already infected, and its immunizing effect is too slowly developed to protect the healthy cattle against infection, if they are left in contact with those already sick. If no other means are available, however, the temperature of the whole of the cattle in the infected herd should be taken by the clinical thermometer, and only those which register a normal temperature should be inoculated with pure bile; the others should be separated from the inoculated lot at once and carefully tended. If glycerine can be obtained, the spare bile should be mixed with it in the proper proportion, one part glycerine to two parts of bile. This mixture, after standing forty-eight hours, may be injected into the affected animals in large doses, not only with safety but with marked benefit."

* * *

The following notes are of interest as they are of an extremely practical nature, and are from the note-book of a gentleman who has had a large experience in the present outbreak:

Period of Incubation.—In the case of a susceptible animal inoculated with virulent blood, there will be a rise of tempera-

ture on the fourth day, and the animal is visibly sick on the eighth day. If the animal does not recover, death usually takes place about the eleventh or fourteenth day. It may recover, or die from "debility" weeks after inoculation during convalescence, or it may die from actual rinderpest.

Symptoms.—Depression, rapid emaciation, painful grunt (in pleuro-pneumonia it is rather one of inconvenience), sticky discharge from inner canthus of eye, scalding the side of face; sometimes a bloody discharge from nose. So-called bran-like exudate on buccal mucous membrane (like thin oatmeal porridge), ulceration, commonly between lips and incisor teeth, (ulcerations have a punched-out appearance like pieces taken out by artery forceps). Diarrhœa, like dirty-water, not like diarrhœa from eating green food; mucous casts and slimy mucus, or blood may be present in fæces. Sometimes there is a slight elevation of the tail, as if there was a sore underneath, occasional straining. Elevation of temperature to 105°-106°.

Autopsy.—Place the carcass on the left side, right side up; make incision through the skin and flesh immediately behind the last rib; the ribs being raised the gall-bladder will become visible. *Always* secure the bile before proceeding further, if of good color. *Ideal bile* is of bright green color (*not yellow or bloody*); dark brown bile may be used, but do not collect a thick treacly bile. In collecting bile, it is always advisable to collect before opening the stomach, and so avoid getting any blood into the bile. Particular care should be taken not to squeeze the gall-bladder. It should be held in the hollow of the hands and gently pushed upwards to allow of the free flow of bile into collecting utensil. After collecting the bile continue the post-mortem. *If rinderpest lesions are found, save the bile, otherwise discard.*

Post-Mortem.—Open fourth stomach (abomasum) and duodenum: if rinderpest exists there will be irregular ulceration (actual), mucous membrane destroyed or eroded, blackish in color—not elevated, as in swine fever (coagulative necrosis). In acute stages these ulcers are surrounded by an acute inflam-

mation, or the inflammation may be present without ulceration. These appearances are most common in the fourth stomach, but may be seen anywhere in the intestinal tract. Claret-colored striæ on rougæ of intestinal mucous membrane may be present in rectum or vaginal mucous membrane. In this last situation it has more the appearance of bruising.

Treatment of Bile after Collection.—If the bile is of an offensive odor (H_2S), discard. If uriniferous odor, it may be used in case of urgency, IF GLYCERINATED.

The odor of good bile (not fresh) resembles fresh raw beef steak.

Let the bile after collection stand in a cool place for 12-24 hours; bile from each animal should be put in *separate* bottles. After standing for 12-24 hours decant all bottles into an enameled iron bucket; discard any bile where the odor is not good. Thoroughly mix all the bile in the bucket with an iron whisk. Measure the bile thus mixed and add one part glycerine to two parts bile, so that the mixture will contain 33 per cent. glycerine. The glycerine and bile to be *thoroughly* mixed, bottle up, seal, and shake frequently. It is best to bury when made, so as to keep cool, but this should not be done for two or three days so as to allow of thorough shaking up. The mixture should not be used until seven days after glycerinization unless very urgent, and in *no case* under 48 hours after making.

Dose.—For immunizing, of the 33 per cent. glycerine-bile mixture use 20 c.c. (6 drams), injected subcutaneously at the elbow or point of elbow. Sometimes a resultant swelling may cause mechanical lameness. Inoculation may be done intravenously (jugular). May be necessary to cast before inoculating.

Dose of Pure Bile.—If the material is available, pure bile (unglycerinated) may be used 10-14 days after first inoculation. *Dose of pure bile should be about 10 c.c. (3 dr.).* This second inoculation intensifies and prolongs the immunity conferred by the first inoculation. The immunity conferred by the first inoculation probably lasts about four months.

In Bile Inoculations, eight or more days elapse before the animal is immunized.

Serum Inoculations take four days before the animal is immunized, but the immunity resulting from serum is not so lasting as that from bile.

In Cape Colony the quarantine period after the last case is *one month.*

THE NEW YORK STATE VETERINARY EXAMINING BOARD has granted the following licenses to practice in the State thus far this year: Samuel Howard Burnett, John Knapp, Burt Inglish, Harry Snyder Beebe, Robert J. Foster, John Bernard Reidy, Jerome Walter Rosenthal, Fred. Dewitt Holford, and Robert A. McAuslin.

FAITHFUL UNTO DEATH.—In a modest flat at No. 138 Livingston Street, Brooklyn, the body of Professor F. H. Daniels, for many years an instructor in music, lay yesterday morning, awaiting funeral services and interment, while at the head of the casket, on a small table, was the body of his favorite dog, Baby, dead of grief at his master's taking off. Baby's father, Maloney, tottered feebly around the rooms, his food untouched since the professor's death. The professor was somewhat eccentric in his habits, preferring the company of his two dogs to the companionship of many of the human kind. They had been his friends for years. Baby, which died with him, was a silk poodle, eighteen years old, the other dog being a year older. For three months the professor had been ill, but until about the middle of March he was able to devote the necessary care and attention to his pets. For a couple of weeks past this care had devolved on other members of his family. Professor Daniels' illness became really serious a week ago, and with his decline came a corresponding change in the dog. When the professor was placed in his coffin on Tuesday Baby crawled under it and died with a whine. He was tenderly lifted to a table beside the coffin, and part of the flowers sent to decorate the casket were strewn around him. The elder dog, too, plainly grieved keenly. He went around the house mournfully, seeking a word from his master or a glance from Baby. Food served to him was left untasted. It is believed he will also die. If it were possible both dogs would be buried beside their master. He was interred in Greenwood yesterday afternoon. Baby will go to a cemetery for his kind to-day.—(*New York Herald, April 3.*)

SOME WOUNDS OF WAR.

By Coleman Nockolds, M. D., V. S., Vet. 1st U. S. Cavalry, Batangas, P. I.

Gunshot wounds form the majority which the army veterinarian is called upon to dress, both among mounted and transport animals during an active campaign. Out here they are chiefly caused by arms of small calibre, rifles and pistols. Occasionally a horse or mule is injured by a bolo cut or stab, or by spears of either iron or hardened bamboo, or an arrow from one of the various diabolical arrangements manufactured by Tagalogs in the form of man-traps. The most common specimen in this particular vicinity consists of a piece of bamboo about twelve feet in length, bent in the form of an arch and held there by a cord made of roots; it is so set that when the victim trips or pushes against the cord the bamboo is set free, driving an arrow which consists of a flat piece of bamboo one inch and one-half wide and about twelve inches in length, sharpened at one end and hardened by burning with terrific force in the direction of the unfortunate who sprung the trap. Of three infantrymen that were wounded in one day by these arrows, one expired whilst pulling the arrow out; it had pierced the fleshy part of his thigh and severed the femoral, and two were laid up for many weeks in the hospital. In those cases the thigh had been pierced; in one the arrow had also entered the scrotum. Another way in which animals or men are occasionally wounded, is by falling into pits which are lined on their bottoms with sharp pointed stakes and covered above with leaves, grass, etc. Ordinary bows and arrows are common weapons of the Tagalog, as also are blowpipes, long poles with a hole through their centres, through which the natives blow small darts; I have often seen them used, but never had an animal wounded with one. Because of these many treacherous methods of warfare which the natives resort to, sometimes prisoners, but more often ponies, are driven along the trail in front of the troops, and in this way many animals have received wounds caused by these

unique weapons, and in fact many animals are killed outright by these man-traps. It is very hard to distinguish the cord triggers, or the grass covered holes when traveling along a narrow trail in thick brush. It is said that the darts blown from the blowpipes are poisoned. It is quite marvelous the distance an expert blowpipe warrior can send a dart. The only representative of large guns that have come under my observation have been either bamboo cannons, reinforced with bamboo rope, or the old cast iron smooth-bore Spanish cannon, from which sometimes missiles are fired, consisting chiefly of stones, pieces of iron, etc. Of course, the man behind the gun is more in danger from such a weapon acting as a shell or projectile than the enemy at which they are aimed. So shell or shrapnel wounds are out of the question in the Philippines.

Rifle bullets of the cylindro-conoidal type and large calibre, cause most of the wounds which our animals receive. Amongst the almost endless variety of guns which the Filipino insurrectos use may be seen brass-barreled guns firing a round bullet, many varieties of muzzle-loading rifles and smooth-bores, Sniders, Remingtons, Mausers, Colts, Winchesters, Mannlicher's, Martini-Henri's, Lebel's, Schmidt-Rubin, Lee-Metford and Krag-Jorgensen. The majority are obsolete patterns, many of a cheap type, but some first-class modern weapons. The Krags, of course, have either been stolen or captured from American troops; most of the other modern arms were bought during the late insurrection against the Spaniards or captured from them. The most common arm is the Remington single shot, it fires a brass-covered leaden ball of the cylindro-conoidal shape, and large calibre pistols from the old-fashioned muzzle-loading single-barreled horse pistol to the modern Mauser automatic ten-shot pistol. Edged weapons include from the finest Toledo blade sabres, silver inlaid bolos, triangular Spanish bayonet to the sharpened and hardened bamboo spears.

The bullets of the various modern weapons are as follows: Krag-Jorgensen used by the Americen troops. Bullet core of

lead, covered with a shell of cupro-nickel. Length, 1.181 inches; diameter .3228 in.; weight, 237 grains.

Mauser bullet, core of lead, covered with either steel or cupro-nickel; length, 1.212 in.; diameter .311 in.; weight 219 grains (Belgium).

Spanish Mauser bullet, hard lead core, steel, coated with cupro-nickel. Length, 1.196 in.; diameter, .2843 in.; weight, 172.8 gr. Mannlicher, lead core, envelope of lubricated steel. Length, 1.253 in.; diameter, .3228 in.; weight, 244 gr. Lee-Metford, hard lead core, jacket of cupro-nickel; length, 1.25; diameter, .3111; weight, 215 grs. Schmidt-Rubin, hard lead core, steel envelope point; length, 1.13 in.; diameter, .3189; weight, 211.5. Lebel, hard lead cupro-nickel; length, 1.26; diameter, .3228; weight, 216 grs. The muzzle-loading smooth-bore and rifles fire a round lead ball. The Winchester and Colt of large calibre, soft or hard lead conical bullets. Enfield bullet is cylindro-conoidal in shape, of lead, with a boxwood plug, filling a large hollow at its base.

The reason that modern bullets are covered with an envelope of harder material is to prevent leading of the rifles, which would soon render the gun useless if the outside of the ball was of soft metal. The destructive effects of a ball depends upon its velocity more than on its weight. The energy of weight and velocity constitutes its destructive propensities. In its flight through air the bullet has two motions, that of translation and of rotation; it is acted upon by three forces, powder gas, resistance of air and gravity.

The resistance of air gradually diminishes its velocity. The rotation of the bullet is due to the rifles in the barrel; in guns that are not rifled there is also rotation on an axis, the direction of which is determined by that point on the inner surface of the barrel with which it last came in contact. Thus, a cylindro-conoidal bullet projected from a smooth-bore gun is liable to strike the object aimed at as its length; rifling of guns has rendered this impossible by causing a rotary motion on its longer axis. The spin of a bullet is more rapid as the twists

of rifling are shorter and velocity of translation greater; for that reason the bullet of greatest length has the greatest velocity. The velocity of the motion of translation of a bullet varies with the distance from the firing point, chiefly owing to the resistance of the air; the velocity of rotation follows the acceleration and retardation of the former and change with it according to the distance.

It therefore follows that the translation and rotation movements cease together when the former ceases by expenditure of energy. But when the motion of translation is suddenly and completely interrupted by contact with an obstacle the motion of rotation continues until its energy is expended. The shape of a bullet has considerable influence on its velocity; flat heads offer greater to air; the Ogival has the least.

No class of wounds vary more in general characteristics than those caused by gunshots. The shape and size of the bullet and more especially the velocity at which it was traveling at the time of impact are the chief factors which influence the extent of injury received. The spherical leaden ball of the smooth bore is the largest and has the slowest velocity; they bruise the skin round the entrance wound, and the soft parts through which they tear are badly lacerated and bruised; the diameter of the wound of entrance is larger than the diameter of the bullet, and the exit hole is larger than the entrance; it is also torn and lacerated, the skin is ragged; if they happen to strike a bone they break it into a large number of pieces, many of the fragments are driven forwards and fissures extend in both directions from the seat of fracture. When the velocity of a round ball is low it may simply flatten against the bone. The spherical ball is also more liable to lodge in a bone than either the large or small bore cylindro-conoidal bullet. The cylindro-conoidal has greater penetrative powers. A higher velocity and a sharp-pointed head rotation does not aid in the penetration of a bullet. This is clear when one considers the fact that an average modern bullet only completes one turn on its long axis in seventy-eight inches of its onward course. Cylindro-conoidal bullets

produce wounds the tracks of which are more clearly cut than by the round bullet; there is a slight ring of contusion at the point of entrance, which is smaller than the missile causing it, and the exit but little larger. If these bullets strike a bone while traveling at a high rate of velocity it shatters it into more numerous fragments than does the round ball. The actual site of fracture is completely cleared of splinters, some of which may be carried out with the bullet, others driven forward in different directions. In this case the exit of the wound may be very large and lacerated, due to pieces of bone being driven through the skin. At lower rates of velocity, that is, at longer range, the bullet does not break the bone into as many fragments; they are also larger and less numerous and displaced, but the wound of exit is always larger when a bone has been fractured; this is diagnostic.

The modern small-bore rifle. By small bore is understood a rifle of .350 inch calibre or less. The Krag-Jorgensen is .315 in. Of other modern small bores the Lee-Metford .303, Mauser .301, Lebel .315, Mannlicher .315 and Schmidt-Rubin .295 inches. The Spanish Mauser 4 inch calibre. There is a great difference of opinion as to wounds caused by the modern rifle missive. Some authorities contend that they are so trivial as hardly to come up to the purpose for warfare, that their stopping effects are not sufficient; that is very true as regards our animals or savages; as unless at very short range or hit in a vital spot they invariably keep going. I have seen a number of horses with more than five bullet holes in them, some through the chest, others through the abdomen, or both, and still attend to their work as if only slightly wounded. On a march recently with orders to kill everything that could not be caught it became a common saying amongst the soldiers when shooting at animals at long range: It is no use wounding them; we can shoot through them, but it does not kill. On one occasion a squad had been firing at a bunch of caribou numbering seventy-five; quite a number were apparently unharmed, but did not seem to want to run away when approached, but would attack our

horses ; some of these animals were literally covered with bullet holes, which in most cases had completely pierced them. One often sees ponies grazing mournfully around with old scars on portions of their bodies, which showed without much room for doubt that the bullets went right through them. It is contended that wounds inflicted by the modern small-bore are so trivial in nature and heal so quickly that the desired object is not attained against the enemy ; that instead of putting a man *hors de combat* for such length of time as will prevent his taking any further part in the campaign, the projectile wounds a man so slightly that after a few days or weeks he returns to his place in the ranks as capable of fighting as ever. This same argument holds good in cases of horses and transport animals. The opinion held by others is that the injuries caused by the projectile of the modern small-bore are so terrible in extent and so fatal in effects that in their opinion the weapons from which they are discharged contravene the spirit entered into by nearly all civilized powers in Russia in 1886.

It is certainly appalling what a deadly weapon the modern gun is if in the hands of good shots, especially at close range ; at the same time many wounds inflicted by them heal and heal quickly, whilst wounds in the same region and of a similar character caused by a large bore rifle would prove rapidly fatal.

At short range, because of the great velocity of the modern rifle bullet, it smashes everything with which it comes in contact, but at long range it bores holes, perforating bones without fissuring them, leaving smooth and small tracks, and secondary hæmorrhage is not as frequent as with the large bore. They are not so apt to lodge in tissues because of the greater penetrative power with which they are endowed. The entrance wound is always smaller than the exit ; they are of circular shape as if punched out, but if the skin is loose, the ring may have a jagged edge ; even when the ball strikes obliquely the wound is oval, but the entrance wounds from a richochet is always lacerated, due to deformation of the envelope of the missive. The size and shape of the wound depends upon the velocity and angle of the inci-

dence of the bullet at the instant of impact with the skin, but the edge of the wounds of exit depends upon, in addition to these, the quality and extent of tissues through which it passes, but there is never as much variation in the shape of exit as of entrance wounds.

In the majority of cases the hole of exit is star shaped and lacerated, but may be oval; a bullet which even grazes a bone without causing fracture, is turned slightly from its course and comes out sideways, thus making a star-shaped, triangular or three or four-sided wound; when it passes through a long hard bone the wound of exit may be a laceration several inches long, with torn edges and shreds of muscle and tendons protruding, and particles of bony débris adhering to its mangled sides; exit wounds of this kind are only produced at ranges up to 600 yards and are always a sign of perforation of the diaphyses of long bones.

At all ranges and whether the bone has been hit or not, the exit hole is usually larger than the entrance. The relative positions of the entrance and exit holes are almost always correct indications of the tract of the bullet, but sometimes when the bullet is turned aside by grazing a long compact bone, this statement does not hold good; but that is exceptional. The channel cut by the small-bore bullet is in the form of a cylindrical tube, the diameter of which at short range is somewhat larger than that of the bullet; at long range it is smaller, but is always larger towards the exit wound. Sudden enlargement occur where the bullet passes through bone or tendon; its sides are smooth and their vicinity engorged with blood, more or less depending upon the extent of the hæmorrhage which has occurred; perforations of fascia are circular punched-out holes of the size of the bullet. Tendons are split in the length of their fibres, except the bullet strike sideways or is deformed when they are lacerated; pieces of saddle blankets, saddles, hairs, clothing, leather, etc., may be carried into the wound. Blood vessels are more often wounded by pieces of bone, but if the new bullet hits them, they will be clean cut; at long range, epiphy-

ses and spongy bones are pierced with little or no splitting; at short range they are splintered. Hard bones are intensely splintered at short range and gradually less so as the range is longer. The skull is shattered at short range; at long range the holes of exit and entrance are clean bored with no splintering.

So-called explosive injuries that have been and are so often discussed, and during the late Boer war each side accused the other of using "dum dum" bullets, were in the majority of cases caused by the ordinary small-bore bullet at short range. Admitting that there may have been some individuals who used soft-nosed bullets, easily made by filing the point of the hard coated bullet until the lead is exposed, the fact still remains that the true cause of most of the severe injuries received in modern battles from small arms is due to the high rate of velocity of the missive, the soft parts at the moment of impact receiving a large amount of the energy of the bullet, move forward and outward in lines radiating from the long axis of the bullet tract with such a degree of force that they act as secondary missives on the neighboring tissues and cause still further pulping and smashing of the tissues. Even the fluid particles participate in the secondary action, which is all the more marked when fragments of bone are driven apart in this manner. Bullets traveling at high rates of velocity produce crushing and attrition of the tissues both directly and indirectly: directly, by the immediate action of the bullet itself, and indirectly by the communication of a part of its energy to the solid and liquid particles which it displaces. Most frequently explosive effects are only markedly apparent when a bone has been struck, lacerations being due to fragments and splinters.

The effect produced when a bullet that has had its point filed off so as to expose the leaden core strikes, is to tear open the envelope, which turns back its edges in the form of jagged flaps of metal; the leaden core breaks up into slug-like particles, which are scattered through the tissues in all directions, producing a wound of the utmost severity.

(*To be continued.*)

PATENT STOCK FOODS AND CONDITION POWDERS.*

By Tait Butler, Veterinarian to North Carolina State Board of Agriculture.

The so-called "condition" powders, with which all stockmen are more or less familiar, seem to have occupied about the same place in the treatment of live stock as the old familiar and much-detested "bitters" which the mothers of thirty years ago thought necessary each spring for the general health of the family. In those good old days of our fathers the administration of these nostrums were generally preceded by taking from each horse and each member of the family a considerable quantity of blood. The practice was thought to cure the sick and prevent the well from becoming sick. While it is true that the bitter tonics repaired some of the injury done by the bleeding, still, with the advance of intelligence among the masses, the fallacy of the practice became apparent; but the old idea was too deeply implanted in the common mind to be crushed by the disapproval of medical science, and it arose again in a new garb as patent medicines and patent stock foods. The love of mystery, if not of humbug, so characteristic of the human mind, and the opportunities for secrecy and deception in the compounding of medicines, gave these new inventions a great field of operation.

The large amount of money expended by the farmers of North Carolina for these patent condimental stock foods or condition powders, justifies the fullest publicity of information concerning their composition and merits. The claims made for them by their manufacturers are briefly stated as follows:

1. That they will prevent disease.
2. That they will cure a great variety of diseases.
3. That they are composed of certain rare and mysterious ingredients in such proportions as will cause a normal or

* Reprinted from the Bulletin of the North Carolina State Board of Agriculture for May, 1902.

healthy animal to digest more food and make better use of a given quantity.

4. That they are of themselves foods of great and unusual value.

The first requisite to a specific and intelligent discussion of these claims is a knowledge of the composition of the mixtures. Fortunately, a chemical analysis readily shows their food value, that is, the amounts of the different food elements which they contain; while a microscopic examination of them reveals the kinds of materials of which they are composed.

The Experiment Stations have furnished this information in such a way as to preclude any probability of error. Massachusetts, Connecticut and North Carolina published bulletins on this subject so nearly at the same time as to make it certain that the work was done independently and without any knowledge of each other's results, and the close agreement of their findings gives additional assurance of their accuracy.

During the past year or two, International Stock Food has been extensively advertised and considerable of it sold in this State, while Pratt's Animal Regulator has also had a large and general sale. For this reason we have selected these two, and will give their composition as published in the bulletins above referred to.

According to the Connecticut Experiment Station, Bulletin No. 132, International Stock Food contains wheat feed, cayenne, salt, charcoal, and some bitter drug; Massachusetts, Bulletin No. 71, says it contains wheat offal, pepper, salt, charcoal, and some material rich in protein, and the December, 1900, Bulletin of the North Carolina Department of Agriculture says it consists of wheat bran, red pepper, charcoal and linseed meal. It will be noticed that all agree that wheat in some form is the principal ingredient. Pepper and charcoal are also found by all three, while salt and a material rich in protein—linseed meal by North Carolina—are found by two, and a bitter drug by one. This is indeed a remarkable unanimity of results when it is remembered that these "foods" are not by any means constant

in their composition, it apparently being the custom of the manufacturers to fill up with any odd material that happens to be cheap and convenient.

Pratt's Animal Regulator, according to the Connecticut bulletin, contains corn meal, salt, charcoal, fenugreek and a bitter drug, while the Massachusetts bulletin says it contains corn meal, salt, fenugreek and a bitter drug. In both cases the bitter drug is thought to be gentian. The agreement is complete, hence almost certain to be accurate in all respects, except at the time the Massachusetts sample was made the manufacturer seems to have been out of charcoal, or perhaps it was just at that time so expensive that he could not afford to sell at $500 per ton.

The following tables show that the chemical analyses, also agree as to the amounts of the different "food elements" contained in these mixtures:

INTERNATIONAL STOCK FOOD.

Authority.	Protein.	Fat.	Nitrogen-Free Extract.	Crude Fibre.	Ash.
	Per Ct.	*Per Ct.*	*Per Ct.*	*Per Ct.*	*Per Ct.*
Massachusetts . . .	16.97	9.35	48.22	8.63	7.74
Connecticut	14.31	4.67	47.88	14.51	12.50
North Carolina. . .	15.06	3.87	. . . . .	12.15	. . .

PRATT'S ANIMAL REGULATOR.

Authority.	Protein.	Fat.	Nitrogen-Free Extract.	Crude Fibre.	Ash.
	Per Ct.	*Per Ct.*	*Per Ct.*	*Per Ct.*	*Per Ct.*
Massachusetts . . .	10.13	4.56	61.86	3.33	11.01
Connecticut.	9.69	4.37	63.75	3.12	12.40
North Carolina. . .	9.75	4.53	. . . . .	3.13	. . . . .

By keeping these analyses before us, we are now in a position to briefly consider the specific claims made by the manufacturers and judge of their accuracy. In calculating the value

of either a medicine or a food, we must consider the cost and the results to be obtained from its use. The cost of International Stock Food is from $280 to $500 per ton, while that of Pratt's Animal Regulator is about the same.

Following the order in which we enumerated the claims made by the manufactures, we may pertinently ask, Are wheat bran, charcoal, salt, and pepper worth $500 a ton for the prevention of disease? It is scarcely necessary to say that these materials have no value above that recognized by all feeders, and are worth in combination or otherwise not more than ten per cent. of what they cost when bought as International Stock Food.

The second claim made for these materials, namely, that they will cure a great number of diverse diseases, is equally false and ridiculous. It is a plain fact, approved by modern medical science, that a well animal does not need medicines, but is really injured by them if they are sufficiently active or strong to produce any appreciable effect. It is equally true that a sick animal should receive treatment for the special disease from which it is suffering. It is, therefore, apparent to any person that the claims made for these stock foods, or condition powders, that they will cure hog cholera, distemper, abortion and scours, make cows give more milk and hens lay, are impossible even if he did not know the ingredients which they contain to be possessed of little or no medicinal or curative value. If any reader doubts this statement, let him ask his family physician, in whom he has confidence, if pepper, salt, charcoal, fenugreek and gentian in extremely small quantities have any decided medicinal properties. Moreover, if these ingredients would in any quantity or proportion effect the marvellous cures claimed for them, the small amount contained in the prescribed doses of these stock foods would produce absolutely no effect. We have quite reliable information of a horse having eaten 12½ pounds of International Stock Food without any ill effects. It is evident that if that amount produced no appreciable effect, two or three tablespoonfuls would not effect the marvellous cures proclaimed in the advertisements.

The third claim enumerated is the one which seems to appeal more forcibly to the average farmer. No person acquainted with the subject is likely to be caught by this claim, but the average stock owner will only be convinced by an actual feeding test. Such a test is absolutely worthless unless the animals selected are as nearly alike as it is possible to get them, and are kept under the same conditions. The food given, as well as the animals or their product, must all be weighed. Any trial made with less rigid or accurate conditions is worthless, but one such is of greater value than a hundred where neither the food nor the animals are weighed. Fortunately, many accurate tests have been made, and the results have been uniformly at variance with the claims of the manufacturers. One such test may be quoted from a bulletin of the Kansas Experiment Station, by D. H. Otis:

EXPERIENCE WITH ACME FOOD.

"On November 1, 1900, sixteen cows from the herd of the Kansas Agricultural College were divided into two lots as nearly equal as possible, on the basis of the yields of milk and butter fat for the month of October. One lot (cows fed Acme food) had the advantage by 212 pounds of milk and 17.4 pounds of butter fat for the month. Both lots were fed on alfalfa hay, with a grain ration of equal parts of corn chop and bran. In addition to this feed, one lot received Acme Stock Food fed according to directions. On December 1, oats took the place of bran in the grain ration of both lots. The results for the three months (92 days) under experiment are as follows:

Eight Cows Receiving Acme Food.		*Eight Cows Without Acme Food.*	
Milk produced, pounds.	14,271	Milk produced, pounds	14,395
Test, per cent.	4.39	Test, per cent.	4.13
Butter fat produced, lbs.	626.7	Butter fat produced, lbs.	595.9
Cost per pound of fat, cts.	14.6	Cost per pound of fat, cts.	12.3

"The Acme Food lot consumed 136 pounds of Acme Food, which, at 11 cents (wholesale price) amounts to $14.96. Deduct this from the feed cost and the expense for feed in producing a pound of butter fat is reduced to 11.68 cents. The difference in the total production of butter fat can readily be ac-

counted for by the difference in the lots at the commencement of the experiment, but granting that it is due to the effects of the Acme Food, it would make the extra butter fat cost 48 cents per pound.

EXPERIENCE WITH GLOBE STOCK FOOD.

"Taking the record for the month of January as the basis, a herd of twenty cows was divided into two lots as nearly equal as possible, there being only a difference of 1.4 pounds of butter fat in the total yield for the month. All the cows received alfalfa hay for roughness and equal quantities of corn- and cob-meal and oats for the grain ration. One lot received the Globe Stock Food in addition. The results for two months (59 days) are as follows:

Ten Cows with Globe Food.		*Ten Cows without Globe Food.*	
Milk produced, pounds	12,784	Milk produced, pounds	12,896
Test, per cent.	4.05	Test, per cent	3.96
Butter fat produced, lbs	518.1	Butter fat produced lbs	511.3
Cost per lb. of fat, cents	11.7	Cost per lb. of fat, cents.	11

"If the Globe Food be eliminated from this experiment, the cost of producing a pound of butter fat is the same in both lots. The totals for two months show that the cows receiving the Globe Food produced 6.8 pounds the most butter fat. Globe Food sells for 9 cents per pound (wholesale rates). The ten cows consumed 43.3 pounds, worth $3.89, or a cost of 57 cents for each extra pound of butter fat produced."

The value of any given food material is best estimated and appreciated by comparing its price with others containing about the same amounts of the different "food elements."

Since the microscope showed us that the principal ingredient of International Stock Food is wheat offal, or wheat bran, we would expect the chemical analysis to correspond very closely with that of wheat bran, and such is the case. Its slightly inferior feeding value and other unimportant variations from ordinary wheat bran are the result of the charcoal, salt, pepper and other useless and inferior substances with which the wheat bran was adulterated.

Wheat bran may be purchased for from $20 to $25 a ton in

North Carolina, while the other ingredients are even cheaper, yet tons upon tons of this stuff mixed up, called International Stock Food and thoroughly advertised, are being sold at from fifteen to twenty times that amount.

The same facts apply to Pratt's Animal Regulator. The microscope told us that it was composed almost exclusively of corn meal, and the chemical analysis is consequently similar to that of corn. The more extensively advertised article sells at from $400 to $500 a ton, while corn meal may be bought for less than one-tenth that price, even with corn at a dollar a bushel.

In conclusion it may be freely stated that the so-called stock foods and condition powders on the market, when tested by accurate and practical feeding trials, when judged as medicines, when compared in price with other materials of the same feeding value, or when measured by the claims made for them by the manufacturers, are frauds pure and simple. If the live stock is well and properly cared for and fed, it needs no medicine. If care and feed are needed, the best may be had on any market for less than one-tenth that charged for them when put up in one or two pound packages and advertised as "stock food" or "condition powder."

The question often arises, why is it if these stock foods are all frauds that so many honest and intelligent men think they have obtained good results from their use? The answer is not difficult. There is in every organism an inherent tendency to return to normal conditions, or, in other words, to get well if sick.

A man, when he gets to the point of buying "condition powders" for his horse, is ready to give him the better care and food which alone would and does bring about the desired improvement in condition. The "stock food" gets the credit, although it does contain nothing but wheat bran, charcoal and pepper and salt. If it is a tonic that the horse, cow or pig is in need of, why not purchase gentian, iron and nux vomica direct from the druggist at half cost? They will not only cost less, but if medicine is really needed, are much more likely to produce the desired effect.

OBSERVATIONS ON BACILLUS COLI COMMUNIS FROM CERTAIN SPECIES OF DOMESTICATED ANIMALS.*

By Veranus A. Moore, M. D., and Floyd R. Wright, A. B., of Ithaca, N. Y.

Read at the meeting of American Bacteriologists, Chicago, January 1, 1902.

There are few species of bacteria, other than the highly pathogenic forms, which have received more attention, and concerning which there seems to be more uncertainty, than *Bacillus coli communis.* It is generally recognized that the normal habitat of this species is in the intestinal tract of man, and certain, if not all, of the domesticated and, probably, wild animals. It is understood further that soil, or water polluted with the excreta of man or these animals may and usually does contain this bacillus in greater or less numbers for a certain length of time after said pollution. It does not seem to be assured, however, that it will multiply and continue to exist as in a new habitat in these extraneous environments excepting possibly in rare instances under peculiarly favorable conditions respecting food, moisture, and temperature. Numerous investigations have revealed the existence of marked variations in this species and already there has come into recognition several groups of varieties with many intermediate and transitional forms. So conspicuous have these varieties become that an inquiry is already being made into their possible significance from a sanitary point of view. Bacteriologists, however, are intensely interested in the conditions which give rise to so many varieties.

A search for the source of the varieties and groups of varieties which have been described shows that, with few exceptions, they have been isolated from polluted soil, water, or lesions of various kinds in man or in animals. The existing knowledge concerning the types and varieties of this species, as it exists in its normal habitat in the digestive tract of different animals, is so exceedingly meager that further investigations to determine, if possible, the extent of its variations in different individuals

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and even in the same individual, and in different species, seems to be promising of good results. The perplexing questions that are constantly arising respecting certain forms of the colon bacillus often found in water supplies and morbid tissues suggested the desirability of determining the relation between these bacilli and those existing normally in the digestive tract of different animals. To this end we undertook the present investigation of the colon group in its natural haunts. The amount of labor involved in following out the different lines suggested in such an inquiry, together with the difficulties involved in obtaining the intestines in the same condition, was so enormous that no attempt is made to correllate our findings either with the stage of digestion, or the character of the food taken previously. We are unable to offer any information concerning the relative numbers of this organism in the different parts of the same intestine, information which our work has suggested would be very desirable and worthy of an independent investigation.

In order to bring our preliminary findings* to the attention of those interested in this work, it seems best to report simply the results obtained, omitting all discussion of the literature.

The general plan of work and methods which we followed are, stated briefly, as follow :

1. To make a series of gelatin plate cultures from each of the large (cecum or colon) and small (ileum) intestines of freshly-killed animals. For this a platinum loop full of mucus from the mucosa was taken for the first plate in each case. A tube of bouillon was also inoculated from each.
2. To make subcultures in bouillon from six well-isolated, characteristic, spreading colonies believed to be those of *B. coli communis*, which appeared on the plates.
3. To replate these bouillon cultures to make sure of no contamination.

* In November, 1900, our laboratory was burned and we lost the cultures of the colon bacillus from 42 animals. These were partially studied, but not sufficiently to include in this list. It can be stated, however, that so far as observed there were no marked exceptions to the results here recorded.

4. To make from the colonies which developed on the second series of plates, subcultures (1) in agar for stock cultures, (2) directly from the same colonies in different media used in this study.
5. To determine the pathogenesis by inoculating such experimental animals as the guineapig and rabbit. (This was found to be impossible for every culture owing to the scarcity of animals.)

After this general scheme examinations were made and the results here reported from 44 animals divided among six species. The cultures made from the different colonies of this bacillus from the intestine of the same animal were practically identical in all of their manifestations. For this reason, but one culture from each individual is included in the appended table.

1. *Horses.*—The horses from which the examinations were made were those killed for dissection in the department of anatomy of the New York State Veterinary College. They were old, but in a state of good health, with the exception of lameness, which in a few cases was very bad. In all, examinations were made from nine horses. In some animals the number of colonies of *B. coli communis* which developed on the plates made from the mucosa of the large and small intestines were practically the same. In these cases they comprised nearly all of the colonies. In others the number of colonies of *B. coli communis* from the cecum and ileum varied, and colonies of other bacteria predominated in numbers. The colon bacilli obtained from the different animals were morphologically alike, all motile, some moderately and others actively so. The cultures in bouillon and on agar, gelatin and potato, did not exhibit characters unusual for this species*. Their effect upon the sugars, on milk, and the production of indol is indicated in the appended table.

2. *Cattle.*—Eleven examinations were made from the bovine intestines. No. 1 died suddenly, supposedly from poison. The

* The general characters which are referred to as differentiating the colon bacillus are those given by Dr. Theobald Smith (The American Journal of the Medical Sciences, September, 1895.)

colon was decidedly hæmorrhagic. Nos. 2 and 3 were killed because of tuberculosis. Nos. 4, 5 and 6 were killed for beef at the slaughter-house. The remaining five were slaughtered veals, four to six weeks old. We also examined the intestines of a calf of full term but born dead. All of the media inocu-

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF HORSES ON THE SUGARS AND MILK.

Horse No.	Indol.	Dextrose.			Lactose.			Saccharose.			Milk.
		Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Coagulated in
1	+	1 / — / 3	3.5 / — / 2.7	Acid.	1 / — / 6	3.6 / — / 2.1	Acid.	0	—	Alk.	8 days.
2	+	6 / — / 13	3.5 / — / 2.5	"	5 / — / 13	3.3 / — / 1.7	"	7 / — / 13	1 / — / 1	Acid.	2 days.
3	+	6 / — / 13	1 / — / 2	"	bubble.	—	"	0	—	Alk.	Acid no coag.
4	+	1 / — / 2	4.5 / — / 2.5	"	6 / — / 13	2 / — / 1	"	0	—	"	7 days.
5	—	1 / — / 3	1.4 / — / 1	"	1 / — / 2	3.3 / — / 2	"	0	—	"	2 days.
6	+	5.5 / — / 13	3 / — / 2	"	1 / — / 2	4.1 / — / 2.6	"	4 / — / 13	1 / — / 1	Acid.	5 days.
7	+	1.1 / — / 2.5	3 / — / 2	"	1 / — / 2	2 / — / 1.1	"	7.5 / — / 13	4.7 / — / 2.8	"	2 days.
8	+	6 / — / 13	3.7 / — / 2.3	"	5.4 / — / 12.5	3.4 / — / 2	"	7.5 / — / 13	4.6 / — / 2.9	"	4 days.
9	+	1 / — / 2	—	. .	5 / — / 13	3 / — / 1	"	0	—	Alk.	No change noticed.

In Nos. 6, 7, 8 the time required for the completion of the gas production in saccharose was 23, 17, 15 days respectively.

lated from this animal remained sterile (not included in table). The number of colonies obtained from the different animals

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF CATTLE ON THE SUGARS AND MILK.

Cow No.	Indol.	Dextrose.			Lactose.			Saccharose.			Milk.
		Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Coagulated in
1	+	1 / 2	3.5 / 3	Acid.	7 / 13	2 / 1	Acid.	7 / 13	4 / 3	Acid.	3 days.
2	+	7.5 / 13	2 / 1	"	5 / 13	3 / 1	"	5.3 / 13	3.3 / 2	"	7 days.
3	+	1 / 2	2 / 1	"	5.5 / 13	4 / 1.5	"	0	—	Alk.	3 days.
4	+	5.5 / 13	3.5 / 2	"	5.5 / 13	3.5 / 2	"	5.5 / 13	3.2 / 2.3	Acid.	7 days.
5	++	5 / 12	3 / 2	"	5 / 12.5	3 / 2	"	0	—	Alk.	3 days.
6	+	5 / 12.5	3 / 2	"	1 / 2	3 / 2	"	0	—	"	2 days.
7	++	1 / 2	3.9 / 2.5	"	6 / 13	3.6 / 2.4	"	0	—	"	8 days.
8	+	1 / 2	3.3 / 2.5	"	6 / 13	3.8 / 2.2	"	0	—	"	7 days.
9	+	1 / 2	3.8 / 2.4	"	5.3 / 13.	3 / 2.3	"	8 / 13	4.8 / 3.2	Acid.	5 days.
10	+	1 / 2	3.7 / 2.5	"	1 / 2	4 / 2.5	"	0	—	Alk.	8 days.
11	+	6 / 12.5	3.5 / 2.5	"	7 / 13	2 / 1	"	1 / 3	2.7 / 1.8	Acid.	8 days.

varied greatly; in the majority of cases there were more colonies of *B. coli communis* on the plates made from the large intestines. The bacilli in the cultures from the different animals showed a moderate degree of motility. The growths in the bouillon, on agar, gelatin and potato were in no way different from those generally considered to be characteristic of *B. coli communis*. The effect on the sugars and on milk are given in the appended table.

3. *Sheep.*—Intestines from eight sheep were obtained. No.

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF SHEEP ON THE SUGARS AND MILK.

Sheep No.	Indol.	Dextrose.			Lactose.			Saccharose.			Milk.
		Quantity of Gas.	$\frac{H}{CO_2}$	Reaction.	Quantity of Gas.	$\frac{H}{CO_2}$	Reaction.	Quantity of Gas.	$\frac{H}{CO_2}$	Reaction.	Coagulated in
1	+	$\frac{7.5}{13}$	$\frac{4}{3.5}$	Acid.	$\frac{1}{2}$	$\frac{4}{2.5}$	Acid.	0	—	Alk.	2 days.
2	+	$\frac{5.7}{13}$	$\frac{3.2}{2.5}$	"	$\frac{5.5}{13}$	$\frac{3.5}{2}$	"	0	—	"	4 days.
3	+	$\frac{1}{3}$	$\frac{2.7}{2}$	"	$\frac{1}{2}$	$\frac{4.1}{2.4}$	"	$\frac{1}{2}$	$\frac{3.9}{2.8}$	Acid.	4 days.
4	+	$\frac{4.8}{12.5}$	$\frac{2.8}{2}$	"	$\frac{5.3}{12.5}$	$\frac{3.4}{1.9}$	"	$\frac{6.5}{12.5}$	$\frac{3.5}{3}$	"	4 days.
5	+	$\frac{5.8}{12.5}$	$\frac{3.3}{2.5}$	"	$\frac{1}{2}$	$\frac{4}{2.3}$	"	$\frac{5.5}{12.5}$	$\frac{3.6}{1.9}$	"	2 days.
6	+	$\frac{1}{2}$	$\frac{4}{2.6}$	"	$\frac{7.5}{12.5}$	$\frac{4.7}{2.8}$	"	$\frac{5}{12}$	$\frac{3.1}{1.9}$	"	2 days.
7	—	$\frac{1}{2}$	$\frac{3.7}{2.3}$	"	$\frac{6}{13}$	$\frac{3.8}{2.2}$	"	0	—	Alk.	Acid slight ppt.
8	—	$\frac{6.7}{12}$	$\frac{4.1}{2.6}$	"	$\frac{5.8}{12.5}$	$\frac{4.1}{1.7}$	"	0	—	"	Acid slight ppt.

1 died of some unknown disease. Autopsy was held a few hours after death. The intestines were apparently normal, except a few nodules caused by *Œsophagostoma Columbianum*, Curtice. All of the others were from nearly or quite full-grown lambs, that were killed for food. Most of the gelatin plates developed many colonies of liquefying bacteria and fungi which interfered with even an approximate estimate of the number of colonies of *B. coli communis*. The colon bacillus was isolated in a number of cases by plating bouillon cultures which were made directly from the mucosa at the time that the original plates were made. In every case the colon bacilli were motile, but the degree of

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF PIGS ON THE SUGARS AND MILK.

Pig No.	Indol.	Dextrose.			Lactose.			Saccharose.			Milk.
		Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	*Coagulated in
1	++	6.3 / — / 12	3.8 / — / 2.5	Acid.	4.8 / — / 12.5	3.3 / — / 1.5	Acid.	1 / — / 3	2 / — / 1	Acid.	Coagulated
2	—	1 / — / 5	1.8 / — / .7	"	5.5 / — / 13	3.7 / — / 1.8	"	0	—	Alk.	No change.
3	++	5 / — / 12	3.2 / — / 1.8	"	5.2 / — / 12	3.4 / — / 1.8	"	1 / — / 5	1.6 / — / .9	Acid.	Coagulated.
4	++	4.5 / — / 12.5	2.7 / — / 1.8	"	1 / — / 2	4.2 / — / 2.3	"	6.7 / — / 12.5	4 / — / 2.7	"	Coagulated.
5	+	1 / — / 2	2 / — / 1	"	1 / — / 2	4.2 / — / 2.5	"	0	—	Alk.	No change.
6	++	1.5 / — / 2.5	2.2 / — / 2	"	3 / — / 8	2 / — / 1	"	1 / — / 3	4.5 / — / 2.5	Acid.	Coagulated in 4 days.
7	+	1 / — / 2	2.7 / — / 1.5	"	5.5 / — / 12	2.5 / — / 1.5	"	2 / — / 5	2 / — / 1	"	Coagulated in 3 days.

* Notes concerning the time required to produce the changes in the milk in the first five cases were inadvertently omitted.

activity differed slightly, except in No. 8, which was very active, exhibiting a darting motion. The growths in bouillon, on agar, gelatin, and potato, were characteristic of *B. coli communis*. The effect on the different sugars and on milk, together with the indol reaction, are appended.

4. *Pigs.*—In this series we used the intestines from full-grown pigs that were killed for food. The gelatin plates were remarkable for the great number of colonies of *B. coli communis* present, and the small number of colonies of other bacteria. In the hanging drop the colon bacilli isolated from each case were sluggish in their movement. There was nothing unusual noted respecting their growth in the bouillon, agar, gelatin, and potato cultures. The effect of growth in bouillon containing sugars and in milk, together with the indol reaction are given in tabulated form.

5. *Dogs.*—Six dogs were examined. No. 1 had distemper,

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF DOGS ON THE SUGARS AND MILK.

Dog No.	Indol.	Dextrose.			Lactose.			Saccharose.			Milk.
		Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Coagulated in
1	+	9 / 13	5 / 4	Acid.	8.5 / 13	6 / 2.5	Acid.	2.7 / 13	1.9 / 0.8	Acid.	3 days.
2	+	7 / 13	2 / 1	"	5 / 13	3.3 / 1.7	"	0	—	Alk.	3 days.
3	+	7 / 13	4.3 / 2.7	"	6.4 / 13	3.9 / 2.5	"	0	—	"	4 days.
4	+	5 / 12	3.4 / 2.3	"	1 / 2	2 / 1	"	1 / 12	1.1 / 4	Acid.	3 days.
5	Colonies of Bacillus coli communis were not found.										
6	+	1 / 2	2 / 1	Acid.	1 / 2	2 / 1	Acid.	1 / 10	5 / 2	Acid.	3 days.

and the intestines were congested; the other five were healthy dogs that were killed for the purpose of obtaining blood-serum for culture media. In one case (dog killed for serum) no colonies of *B. coli communis* developed. In the other cases more *B. coli* were found in the large intestine than in the small. There were many colonies of liquefying organisms. The colon bacilli showed the characteristic morphology, and were all motile with no marked difference in degree. Cultures in bouillon, on agar, gelatin, and potato, showed no unusual characteristics, and all produced approximately the same amount of indol. The effect of the different cultures on sugar and milk follow.

6. *Chickens.*—The chickens, three in number, were about three-quarters grown, and were killed for food. *B. coli communis* was present in large numbers. They were only moderately active. The growths in bouillon, on agar, gelatin, and potato, showed no unusual characteristics. There was no appreciable difference in the amount of indol produced. The results of partial examinations of the colon bacilli from seven other chickens gave, so far as made, similar results, except certain of them which permeated saccharose with the formation of gas. The action of the bacilli from the three fowls, on sugars and milk are appended.

A study of the action of the colon bacilli on the sugars and milk shows that those existing in the intestines of these different species of animals fall very naturally into two groups, viz., those that ferment the three sugars with the formation of gas and those that ferment dextrose and lactose only. These correspond with the two varieties described by Smith. It is important to note that the quantity of gas produced and the relative quantities of H and CO_2 varied somewhat in the different cultures. It is difficult, however, to find variations sufficient either in extent or constancy to warrant the formation of new varieties or groups.

Examinations have been made of the intestines of a number of frogs with negative results so far as the colon bacillus is concerned. A number of rabbits have also been examined, with

the result that *B. coli communis* appears in the intestine of about one rabbit in four. All of the cultures studied from the rabbits fermented the three sugars with the formation of gas. They all produced indol and coagulated milk.

ACTION OF BACILLUS COLI COMMUNIS FROM THE INTESTINES OF CHICKENS ON THE SUGARS AND MILK.

Chicken No.	Dextrose.			Lactose.			Saccharose.			Milk.
	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Quantity of Gas.	H / CO_2	Reaction.	Coagulated in
1	3 / 13	2.5 / 0.5	Acid.	3.3 / 13	2 / 1.3	Acid.	0	—	Acid.	2 days.
2	7 / 13	2 / 1	"	7 / 13	4.7 / 2.3	"	0	—	Alk.	3 days.
3	4.5 / 13	3.5 / 1	"	5 / 13	3.8 / 1.2	"	0	—	Acid.	3 days.

The variation in the pathogenesis of the cultures from the different species of animals was very marked in so far as they were tested. Guineapigs inoculated in the abdominal cavity with 0.5 cc. of a fresh bouillon culture died in from 24 to 36 hours when inoculated with the cultures from dogs, but with very few exceptions they did not die after the inoculation with cultures from the other animals. The further fact was observed that when guineapigs were inoculated with cultures of one, two, three, four and five days' growth respectively, those inoculated with the four and five day cultures remained well while the others died. Additional results will be necessary before conclusions can be drawn from these preliminary observations.

MANY New York State veterinarians complain that the laws are not enforced against non-qualified practitioners. This subject will be brought before the meeting in Brooklyn on the 9th and 10th inst. Every practitioner in the State should feel it his duty to be present and assist in the efforts then to be made.

VALEDICTORY ADDRESS,

DELIVERED BY J. H. HANNA, CHICAGO VETERINARY COLLEGE, AT THE COMMENCEMENT EXERCISES, FRIDAY, MCH. 28, 1902.

Mr. President, Professors and Classmates:

To few men does life bring a brighter day than that which places the crown upon their scholastic labors, and bids them go forth from the halls of their Alma Mater to the great world's battle-field.

There is a freshness in these early triumphs, which, like the bloom and fragrance of the flower, is quickly lost, never to be found again even by those for whom fortune reserves her most choice gifts.

Fellow-classmates, we have stood upon the threshold of the world; of the many careers which are open to human activity, we have chosen *one*. Wordsworth says, "A noble *aim*, faithfully kept, is as a noble deed."

All men have an ideal, base or lofty, which moulds character and shapes destiny, and to a man who is a lover and connoisseur of animals, whose desire it is to live for a good purpose, the attainment of a profession by which he is enabled to scientifically treat, in accident or disease, any of the domesticated animals, and enhance their value and usefulness to man; that is *his* ideal, the truest expression of his nature, one that he loves, and lives by, and, perchance, his ideal will be real and he will take rank with the profound thinkers and finished scholars of the world.

Not half a century ago was established in Boston by Dr. George Dadd, the first veterinary school in this country. There appeared to be at that time an impression that the work of a veterinarian was but a subordinate medical practice, so the teachings of the early days were given into the hands of physicians and surgeons, and not until there appeared a new generation of veterinarians did the great advancement in comparative medicine commence.

To-day, in the heart of this metropolis, occupying one of the foremost places in this great nation, resplendent in the glory of her achievements, is our college home. The spirit of research, independent investigation and self-reliance *is there* for inspiration.

The course of study, conducted by the most able instructors, has been broad, extensive and thorough in every detail.

The mode of teaching has been so practical, so comprehensive to the student, that he cannot help being able to cope with all the difficulties incident to his profession, and catch the inspiration of future development.

The interests in the animal world have grown so varied and extensive, veterinarians are now looked to for protective measures in the food supply derived from animals. They are expected to be comparative pathologists able to treat diseases of each species of the domestic animals, to know the nutritive needs of animals kept for different purposes and doing different kinds of work. How to utilize to the best advantage the different products of the farm for growing animals for meat or milk; also, to understand the physiology of the reproductive processes of the animal kingdom, the laws governing heredity, and the influences and conditions that may be applied to improve the offspring, that they may be made stronger to endure work and resist disease.

They are looked upon as safeguards to public health, inspecting animals subject to diseases transmissible to man.

In view of the foregoing we are justified in saying that the veterinarian has by the force of unrelenting efforts and the most discouraging conditions, finally achieved the distinction which he merits.

Although we have been of one mind in choosing our profession, dug and delved from the same old text-books, wrestled with Chauveau, Friedberger, Fröhner and Stengel *together*, listened to the same able teachers, who have been untiring in their efforts to stimulate and direct the energies and impulses of each and every one of us, who have marshaled us from the

hard prosy studies of anatomy, physiology and chemistry to bacteriology and its microscopical revelations, who have taught us principles, and how to apply our knowledge, and the way to gain more, and especially have they labored unceasingly to inspire us with a love of mental exercise, instilling us with self confidence sufficient to commence our life's work; although we have all had these same advantages and may have the same ability, our fame and fortunes will be varied.

To-morrow we shall leave these halls, around which so many pleasant recollections hover, to continue amid other surroundings the work of veterinary science, which *here* has but begun. It is my earnest desire that you go forth filled with resolute will and noble enthusiasm to labor, even to the end, in building up that being which is *Yourself*, and increasingly approach the finest type of perfect manhood, feeling and understanding that no labor can be too great or too long if it results in the advancement of veterinary science.

In the *practice* of your profession train the mind to habits of patient attention, and careful observation, remembering that suffering is hard to bear, and pain cannot be quiet. Be always conscious of the fact that a veterinarian is not a second-rate doctor, nor a jockey, neither does he belong to the great American army of *horse doctors*, nor does he belong to the subordinate branch of the medical profession. He *can* be, however, the natural and highest authority on questions pertaining to comparative medical science, therefore let your every act be such as to maintain the dignity of your profession, that this science may grow and be strengthened, until it takes its proper place among the economy of nations.

Fellow-members, we part to-day, perchance to meet no more. Yes, to meet no more, for in this ever-changing world, the finite mind cannot foretell, what may befall us, ere the break of day. But on each succeeding anniversary of this day, this day of sadness and of triumph, may our thoughts go back to when we were standing on the threshold of a new life, so full of hope, and so eager for action, whether the best successes have

been our lot, or whether we have drank deeply of the bitter cup of failure, let our thoughts revert to the happy days in the C. V. C., gone to return no more.

My best wishes go with you, that you may ever be an honor to your calling, and God forbid that any one of us shall in any way disgrace our chosen profession, the profession of humanity, or reflect anything but praise and credit upon the school of which we are so proud.

To the President and Faculty: In behalf of the class of 1901 and 1902, I wish to express our gratitude, and our appreciation of your patience and forbearance. We realize now as the time draws near to say good-bye, how much you have endeared yourselves to us, by these and many other considerations, and while you journey down life's pathway and near the unknown land may you be endowed with those priceless *riches*, contentment and the knowledge of a work well done.

THE annual announcement of the Ontario Veterinary College, Limited, Toronto, Canada, has just been issued. The session will commence this year on Oct. 15.

A NEW ANÆSTHETIC.—The following item is from the Lexington (Mo.) *News*, of July 31: "*Magnetic Hypnotism Successfully Practiced on the Horse.*—Dr. Smith removed a large lime deposit from the shoulder of a horse belonging to Mr. Ragland, of Mayview, which was of several months duration, and had become deeply encysted between the muscles. During this entire and painful operation not an anæsthetic was used. The animal was under perfect control and remained quietly standing until the end, showing conclusively the effects and power of magnetic hypnotism in the lower animals. In order to eliminate to a more or less degree the pains and sufferings of the dumb brute, Dr. Smith has spent much time and study on this especial branch of science, whereby he might become able to control his patient, and especially the horse. This demonstration was his most successful one, and up to the present time the horse is recovering nicely." [The "Dr. Smith" referred to is Dr. George I. Smith, of Lexington, Mo., who has reported some interesting cases in the REVIEW. If he is responsible for the above item, we trust he will write and explain the method which he has adopted.—EDITOR.]

PHLEGMASIA DOLENS, OR WHAT?

By Dr. C. A. McKim, Norfolk, Neb.

Read before the Iowa-Nebraska Veterinary Medical Association, Omaha, October, 1901.

In selecting this subject for my paper before this association, I have not done so thinking I know much about it, or that I can give you anything new or of importance in regard to it; but its being of rare occurrence and having happened in my practice at two different times, once in a cow and once in a mare, I was led, or compelled, to give it some extra study, so thought it might be of interest to you.

The definition of the word "*phlegō*" is to inflame, and of "*phlegmasia dolens*" or "*phlegmasia alba dolens*," an acute œdema of the leg, from venous obstruction—a white, firm swelling of the legs after delivery.

On March 25, 1898, I was called to see a cow belonging to our dairyman, which, he said, was one of his best milkers. On my arrival at his farm I found the patient in his cow stable (which was a very good one, well built, ventilated, drained, and well lighted). The owner informed me that the cow had calved a few days before, not stating just how many days; and apparently had no trouble in giving birth to the calf. The owner was also sure she had passed all of the placenta or afterbirth, and he had thought, up to the day before my visit, she had been doing very well. Then he noticed a slight discharge passing from the vulva. She was restless, and refused her feed, or only ate indifferently. She also strained some and made frequent attempts to micturate.

By examination per vulva and vagina, I found the mucous membrane injected; the os uteri was so firmly constricted I could not at first pass my index finger into it. I removed from the vagina long strings or masses of dark yellow, or chocolate colored mucus. The pulse was quick and frequent. I have forgotten now the degree of fever, but her temperature was elevated. She would lie down and be disinclined to rise, lying on her side and grunting. My diagnosis was acute septic metritis.

As the cow had received good care and feeding and been in warm quarters, I could not say it was caused by neglect or taking cold, but considered it due to absorption of some septic material, probably part of the placental membranes, but I could not dilate the os sufficiently to get my hand into the uterus to make an examination. I introduced my female catheter through the os and flushed out the uterus and vagina with a solution of permanganate of potash, having the water as hot as I could bear my hand in it; this I injected with my injection pump. This was repeated every other day at my visits, as the owner could not attend to it himself. It should have been done once or twice a day. After using the permanganate a few days I alternated with a lysol solution. I also prescribed a fever mixture and later a tonic or stimulant.

With this treatment the cow improved slowly, but on April 1 the owner came in and told me the cow was lame in the left hind leg. I promised to go out the next day. I did so, and found her suffering from a good deal of pain in the leg. It was swollen at and a little above the fetlock, was hot and painful to the touch. I asked the owner if she could have hurt herself in any way, but he could not account for it at all. There were no signs of any injury. I, however, prescribed for a sprain, hot fomentations and bathing with a liniment and bandaging.

At my next visit imagine my surprise and puzzle in finding the cow's leg swollen nearly up to the body, the swelling being œdematous, the lymphatics on the inside of the leg enlarged and corded. My first impression was,—Is it a case of lymphangitis?—but I thought not. I continued my hot applications and liniment, also the fever mixture, and instructed the owner to come in and let me know how it was the following morning.

I admit I was bothered to account for the conditions presented in the case unless I might call it septic infection from the uterus, and I did think of a pelvic abscess, but could not locate one. The limb swelling first at the fetlock was a puzzle, but now I can account for it, if there was a venous obstruction.

I had, a short time before this secured Dalrymple's "Veterinary Obstetrics," and I will now give you his description of my case, which I concluded was phlegmasia dolens:

"This condition," he says, "is more common in the human subject than in the lower animals. It appears generally a few days after parturition. It is due to an obstruction of the lymphatics of one or more limbs, or of the femoral, or femoral and iliac veins, and is followed by œdema of the affected limbs.

"The cause is believed to be pressure of the uterus or thrombus, due to obstruction by some foreign material from the uterus."

The American text-book of "Obstetrics" calls it "Phlegmasia Alba Dolens," and says: "It may be due either to phlebitis or to cellulitis; often both conditions are combined. In the phlebitic form one or more veins form solid strings and below the obstruction the extremity becomes œdematous and swollen. In the cellulitic form the skin is white or pink, tense and hard, one or both legs swell and the epidermis may be lifted by a serous fluid, forming large vesicles. The inguinal glands swell. Suppuration and mortification may spread destruction in the connective tissue under the skin, or between the muscles. This pernicious form, however, is rare." [But in my case in the mare, as I will describe, I had all the above conditions.] "Commonly the inflammation begins the second week after confinement."

"The lymphatics on the inside of one or both hind limbs become enlarged and corded, somewhat resembling lymphangitis. This is followed by œdema of the whole limb, the animal loses the power of the limb [in my cases this was only partial], first *at the fetlock*, then all of the joints become affected and ultimately the patient gets down. On examination the limb is found to be swollen, hot, and very painful.

"The disturbance is considerable and much fever is present. The pulse is hard, quick, and frequent. There is inappetence and the secretion of milk much diminished. If the patient is carefully treated these symptoms gradually disappear, but in

some cases it runs on, inflammation of the tissues of the limb generally takes place, and abscesses form, chiefly at the hock; the animal may die from anæmia, septicæmia, or traumatic fever."—(Dalrymple.)

All these symptoms were marked in my case, the cow gave hardly any milk, a large abscess formed at the external lateral aspect of the hock, and I could pass my long probe for twelve inches up under the perforans and perforatus tendons and up under the postero-internal aspect of the limb. The discharge was of a yellow or creamy color, and the owner asked me if it was not the milk coming down that way.

Dalrymple says, if the patient be a mare put her in slings. Give a laxative in all animals, followed by febrifuges and diuretics. Where the limb is very painful, hot fomentations may be used in the first stage, and judicious scarification if the effusion is considerable.

Patients that will not permit of slinging, should be turned every three or four hours. When the acute stage has been passed, bandaging will assist absorption, and diuretics, absorbents and tonic should be given.

The phlegmasia usually runs its course in from three to six weeks and ends in resolution—it may pass into suppuration and the patient still recover; as a rule the thrombus is absorbed and the swelling subsides.

I followed the above treatment as suggested. The abscesses I treated twice daily with hot poultices and syringing out the cavities when poultices were changed with a lysol solution. The discharge per vagina was stopped and the animal made a recovery in about six weeks.

On April 13, 1900, I was called out to see a large black mare. She had a colt about ten days old. The owner had thought her all right until this time, but she now began to refuse her feed and seemed in pain. There was a discharge from the vagina, which he said had been so since she foaled. I could discover nothing but the discharge and she disliked to have me examine the vagina as if it gave her pain. I left a wash for the

vagina and a tonic and fever mixture. Her temperature was about 102° F.

The owner reported in a day or so she was doing well.

On April 23 he came for me again, and when I got out to his place I found the mare in a good deal of pain, the fetlock swollen and hot. She could not bear her weight on it very well. I could find no swelling or soreness higher up, at this visit, but I suspected it was phlegmasia and prescribed as above.

On the 28th her leg was swollen nearly to the body, and all other symptoms of the disease were present. In a few days a hard, firm swelling appeared over the gluteal muscles of the left side and I could detect it with my hand in the vagina.

On May 5, when I went out, I found her down and unable to rise. The owner said we might as well kill her. I found the abscess in the gluteal muscles ready to open and made a long free incision, and I believe more than a gallon of pus escaped. This should have been opened several days earlier, but the owner had been in and told me not to come out, as he thought it no use, but I went out on this trip anyway. After the pus escaped I took my long seton needle and passed it into the cavity until I could feel it through the vagina, and I made a good free opening into the vagina and about eight inches in from the vulva. Then I flushed the cavity out thoroughly with a permanganate wash. The mare got up before I left. I treated her similar to the cow, and she made a nice recovery in six or eight weeks and is still alive and working, although away up in her teens.

Thanking you for your kind attention, and, while I doubt if I have repaid you for your time in listening to me, I trust the discussion of the paper may bring out some points of interest and value to us all.

NEW YORK STATE VETERINARIANS who have been voicing their discontent at the non-enforcement of the veterinary laws should attend the State Society meeting, at Brooklyn, 9th and 10th inst., and lend their aid, or forevermore hold their peace.

BRIEF NOTES ON THE TREATMENT OF DIARRHŒA AFFECTIONS IN ANIMALS.

By P. A. Girard, M. D. C., New Richmond, Wis.

In the treatment of diarrhœal affections in domestic animals I have fouud that we can avail ourselves with advantage of some of the newer intestinal astringents and disinfectants which have been so widely discussed in late years, and which have proved so valuable an addition to the list of remedies. My experience with one of these, tannopine, has been so gratifying that I would briefly review the results of my observations.

This drug is a chemical combination of tannic acid and hexamethylen-tetramine. It is a reddish-brown powder, insoluble in water and weak acids, and contains about 87 per cent. of tannic acid. It passes unchanged through the stomach, its action being entirely confined to the intestinal canal, in which it splits up into tannin and ammonium formaldehyde. Owing to this peculiarity it will not upset the stomach, and as its decomposition in the intestine is slow and gradual the effect extends down to the lower portions of the bowel. For this reason it is applicable both in catarrhs of the upper and lower intestine. Aside from its astringent property, tannopine is an excellent disinfectant, this being due to the fact that the hexamethylen-tetramine, which is one of its components, sets free formaldehyde, which is one of our safest and most efficient internal antiseptics.

Dr. A. C. Hassloch, of New York (American Veterinary Review, November, 1900), considers tannopine of great service in the treatment of diarrhœal affections, acute and chronic intestinal catarrhs, and enteritis of horses and cattle and the smaller animals. Following his recommendation I have used it in similar cases. Owing to its tastelessness it can be easily given in the feed.

Last September I was called ten miles to see a cow affected with acute diarrhœa. The animal was passing thin, watery, mucous fluid. She was so greatly exhausted as to be unable to

be on her feet and had been in that condition for two days without taking any food. I administered three drachms of tannopine, and ordered the same dose to be repeated in two hours until three had been taken, and then the same amount every three hours for two doses. After that the drug was to be continued in two-drachm doses three times daily. The next day, in the evening, the owner reported that the diarrhœa had ceased that morning. There was no more straining and the appetite had greatly improved. No further treatment was required.

Another case was that of a western horse that had been brought from Montana. He had never had a halter on, and was as wild as a broncho, so that it was very difficult at first to corral him. When I saw him, however, he was so weak that I found no difficulty in administering four drachms of veterinary tannopine. I left four more powders of three drachms each, and ordered one to be given every three hours, at the end of which time the owner was to report to me. By that time the horse had so much improved that I was informed that he did not require my services any further. The appetite was good and the animal had resumed its former friskiness.

These two cases are cited only to show the promptness with which the remedy usually acts in diarrhœal conditions, and my results have in general been so satisfactory that I have no hesitation in recommending the drug for general use in the treatment of the various forms of gastro-intestinal catarrh, both of acute and chronic character.

VETERINARIANS of New York State should be in Brooklyn on Sept. 9 and 10 to witness and participate in the surgical clinic at the meeting of the State Society.

MOLASSES, or syrup, is becoming quite popular as a food for horses in New York, and a number of veterinarians are experimenting with it in large stables of their clients. The high price of oats has compelled owners to try for some ration that is cheaper, and yet will produce muscular strength and adipose tissue. Dr. Berns, of Brooklyn, will present his experience with the food before the New York State Society, which meets in Brooklyn, Sept. 9 and 10.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

PARTURIENT PARALYSIS PRIOR TO PARTURITION—FATAL.

By JOHN J. REPP, V.M.D., Professor of Pathology, Veterinary Division, Iowa State College, Ames, Iowa.

Subject.—A pure-bred Jersey cow, large size, 8 years old, good condition, heavy milker, expected to calve at any hour.

History.—Cow completed nine months of her gestation period June 17, 1902. She was on pasture about one-half mile from her stable, to and from which she was driven daily until the evening of Wednesday, June 25, 1902. The grass she obtained in the field was her sole diet. June 26th she was kept in the stable yard and fed a small amount of ground corn and some blue grass which had been mowed a week before. On June 20th milking was begun and continued to the time her illness begun. The cow had no previous illness except an attack of conjunctivitis about a year ago. On Thursday morning, June 26th, she ate, but not with the usual avidity. Shortly after feeding she was noticed to stagger in walking and when she lay down had some difficulty in rising. Her muzzle was dry. She had not defecated or urinated during the morning. The owner sent for me and I arrived at 11 A. M.

Observations and Treatment.—The cow was lying on her sternum and was unable to rise, although she made several attempts on being urged; temperature, 100°; pulse, 64; respiration, 20, with expiratory sound much accentuated; muzzle dry; udder very pliable; slight curve in neck when animal attempted to extend it; at intervals the head would be carried around toward flank and kept there momentarily; consciousness and sensation slightly impaired; occasionally she would throw her head to the floor with slight violence. On examination per vaginam, it was found that the os had not yet begun to dilate and that the presentation was normal. There was no evidence that labor had begun. I made a diagnosis of parturient paralysis, and at once gave 1¼ grains of strychnine sulphate hypodermically; then withdrew the milk, washed the udder and teats with soap solution and disinfected them with 5% solution of carbolic acid in warm water; injected into the udder one quart of water in which was dissolved 2½ drams of

potassium iodide; emptied the rectum with the hand; gave subcutaneously 1 dram fluid extract of digitalis; had the cow propped up on her sternum; gave directions to keep her in that position and to prevent her from injuring herself by violent movement, toward which she manifested more than the usual tendency.

At 6.30 P. M. I was telephoned by the owner to come to the cow as soon as possible, as she had been getting gradually worse during the afternoon, and had been rather violent in her action. I arrived at 7 P. M. The cow was lying with her head upon her side, a position which she kept most of the time, exchanging at intervals and for short periods, for the latericumbent position. She threw her head with moderate violence occasionally; was in a semi-comatose condition; temperature 101°; pulse 80 and of fairly good quality; respiration 40 with loud groaning expiratory sound; the rectal mucous membrane was highly congested, some blood issued from it, and it was relaxed so that a small fold protruded; still no sign of labor.

She was given through the teats 2½ drams of potassium iodide in one quart of water; was given a rectal injection of 2 gallons of warm water, in which 4 ounces of sodium chloride had been dissolved; six quarts of highly colored urine was withdrawn with the catheter; one-half dram of fluid extract of digitalis was given hypodermically. The cow was then left resting somewhat easier.

At 10 P. M. I returned and was told that the cow had been somewhat violent. She was still about half conscious; respiration and pulse about as on previous visit; animal lay on her sternum with nose in flank the greater part of the time; no evidence of labor. I gave one-half dram of fluid extract of digitalis hypodermically.

At 7 o'clock the next morning I was informed that the cow gradually became weaker and weaker, more and more nearly comatose, and died at 3 o'clock A. M.

Autopsy.—There was found a large, fully developed female fœtus in normal position; kidneys congested, perhaps the seat of an acute parenchymatous inflammation; capsule stripped off easily; udder congested; the lymphatic glands of the udder showed petechiæ in the cortex. All other organs were in a normal condition except for some post-mortem congestion.

Remarks.—This case is notable on account of its occurrence before parturition. It was of a malignant nature from the beginning, and progressed to a fatal termination within about 21

hours of its onset, with its course but little modified by treatment. It is a rather common experience that cases showing the tendency to excitement are more apt to be fatal than when the animal is overome by coma and remains quite. A number of veterinarians have told me that they disiike the violent cases as they are less apt to yield to treatment. This is my seventh case of parturient paralysis within a year. The other six recovered.

SOME MORE BENEFITS DERIVED FROM GLYCO-HEROIN (SMITH) IN THE TREATMENT OF COUGHS.

By GEO. W. MEYER, D. V. S., New York City.

In the June issue of the REVIEW, I was very much interested in the article by Dr. DeVine, on "Glyco-Heroin (Smith), in the Treatment of Coughs." His experience of an obstinate cough fitted mine to a letter, having at the time a case that made me feel it was beyond a cure.

Not having tried glyco-heroin before, I lost no time in sending down to the Martin H. Smith Co., at 105 Chambers Street, New York City, and procured several bottles, with the following results:

Case No. 1.—Roan gelding, five years old, draught horse; had a severe attack of laryngitis about three months ago. Cough had never left him. The usual remedies that generally relieve a cough were tried, until patience on both sides, that of the owner and myself, was pretty nigh exhausted, and decided that this would be a good case to test glyco-heroin. So the driver of above horse was supplied with an eight-ounce bottle of glyco-heroin, a syringe (℥j) and a vessel to measure an ounce, and directed to give ℥j every two hours. As he was interested in getting his horse well, he faithfully administered the medicine. This small amount was given him so as to compel him to stop every second day for a fresh supply, thus enabling me to get a report as to how he was progressing. After the first eight ounces were given, a marked improvement was noticed; the eight-ounce bottle was refilled, and so on, and each time the supply was given, an improvement was noticed, until three pints were used, when the driver came in smiling, returned the syringe and a few ounces of glyco-heroin, saying the horse had not coughed for the past few days, and didn't think he would need any more medicine. Three weeks are now passed since his last dose, and nothing mentioned of that dreaded cough.

Case No. 2.—Black gelding, six years old; laryngitis acute; temperature 103° F.; appetite slight, cough dry and often; nasal discharge slight. Counter-irritant applied and usual remedies. Following day temperature 105⅗° ; appetite none; cough very frequent. Acetanilid (℥ j) given; glyco-heroin (Smith), ℥ j, every two hours. Following morning, at 8 A. M., temperature 102⅖° ; appetite slightly improved; coughed not so frequently; nasal discharge increased; glyco-heroin continued, ℥ j every two hours. After the third dose, large hard pieces of phlegm were blown from nostrils. At 6 P. M. seemed to look for feed, and did finish two quarts of soft feed. Next day, 8 A. M., temperature 100⅖° F.; good appetite; much brighter spirits; coughed but once; nasal discharge decreasing; medicine reduced to ℥ j (t. i. d.). Following day temperature 100° F.; eating feed with a relish; no cough noticed; nostrils clean; everything normal; medicine stopped; gentle exercise ordered. Has worked each day, and at last report has not been heard to cough since.

Case No. 3.—Bay gelding, nine years old, about 1500 pounds. Coughed for about two months. Nothing had been given to relieve it; owner simply thought his horse had a slight cold, as he fed well, seemed all right, and worked each day. Finally, getting tired of hearing the cough, decided to see about it. Glyco-heroin (Smith) was given, ℥ iss every two hours; no more was needed than the Oj; the cough disappeared.

Case No. 4.—Iron grey gelding, four years old, large truck horse; had a cough when purchased three months ago; had an attack of pneumonia. When convalescent had a cough that seemed to "shake him all to pieces," was the stableman's expression; this was another good case for glyco-heroin. So a pint was supplied, with directions to give ℥ j every two hours. and report when medicine was gone. The report was that the horse was "a whole lot better," but another bottle might help it. So another pint was supplied, with directions if cough did not stop, to call for more. As this was a valuable horse, the expense was no object. However, no more was needed; the horse was put to work, and by the time the second pint was used, the cough was entirely gone.

Case No. 5.—Bull terrier dog, coughed for about two days. It was an acute case of laryngitis, with high fever, no appetite, very much distressed, and very sensitive to touch in region of larynx. With each paroxysm of cough it seemed he would choke. Glyco-heroin was given (℥ ii), half a teaspoonful every two hours; in two days so much improved that the next few

days half teaspoonful t. i. d. was given. Within a week dog was back to his former spirits and felt as if nothing had happened.

Case No. 6.—Grey gelding, ten years old, small delivery horse, coughed four or five times a day. This case was immediately sent for treatment. Received one ounce glyco-heroin every three hours. End of second day no more cough was noticed.

Case No. 7.—Fox terrier dog, would cough very frequently. Upon examination found to yield on pressure to throat, and cough when pressure was applied. A few questions brought out that he had pulled very hard on collar, not being accustomed to being tied. Glyco-heroin was given, half teaspoonful t. i. d. Owner reported after week elapsed, that the dog stopped the cough on the second day, but thought it best to finish the medicine.

Case No. 8.—Grey gelding, ten years old, large draught horse. Symptoms very much the same as case No. 2. Acute laryngitis, temperature 106° F. Very much distressed, could swallow very little water, most of it returning through the nostrils. Counter-irritant applied, and glyco-heroin given ℥ j every two hours. Next day not much improvement, temperature 105$\frac{3}{5}$°, appetite none whatever; gave ℥ ii glyco-herion every two hours, with a better result. The nasal discharge increased, large hard pieces of phlegm falling at bottom of pail when attempts were made at drinking. Following day slight improvement in appetite. Temperature 102°. In drinking, quite some water returned through the nostrils. His cough was decidedly improved, and on this day had eaten two quarts of feed at a meal. The dose was now reduced to ℥ j every two hours, and at the end of three days temperature was 100° F. Appetite good, the discharge from nostrils very slight, general appearance very bright, with only an occasional cough. On second following day was put in for half day's work, which was slow, and medicine given t. i. d. After a week was passed no more cough was heard, and horse is as well as ever.

From the beginning I could see many advantages in the use of glyco-heroin (Smith). It being of a syrupy consistency, which when syringed into the mouth, sticks to the tongue and lips, thus hardly a drop is wasted by spilling. It is very convenient to administer, besides having a pleasant taste, the patients seem to like it, but the most important of all is the rapid and permanent recovery each case has made, and I feel that if any fellow-practitioner is in trouble with a case of cough, he

will have a remedy in glyco-heroin (Smith) that will help him out.

PARTURIENT PARESIS (?)—SCHMIDT'S TREATMENT, MINUS THE IODIDE OF POTASSIUM.

By W. E. A. WYMAN, V. S., M. D. V., Portland, Mich.

The writer always had serious doubts about the correctness of a diagnosis "parturient paresis" in cows which calved six days or more previous to the setting in of milk fever. Nevertheless, the writer's equilibrium in regard to this orthodox point of view was seriously interfered with on July 16th. The subject was a Holstein four-year-old, which calved on the 2d day of January, 1902, supposed to be with calf since February, 1902. This animal had been bought six weeks ago by its present owner, and being in poor flesh was grained heavily. She was apparently in good health on the 15th and down and unconscious on the 16th A. M. The writer, who was called at this time, found her in a semi-comatose condition. Temperature 98° F., respirations 8 per minute, surface temperature unevenly divided, she being icy cold along the spine; tonic spasms of the muscles of the neck, head drawn toward the right shoulder; pulse 62 per minute, irregular and small; visible mucous membranes icteric. Pregnant, calf alive. Food and water beyond criticism, except the quantity of nitrogenous food, which had been excessive. The owner called it milk-fever,—the writer followed suit willingly, not because he believed it to be an honest case of parturient paresis, but simply because the owner was agreeable, it being a case where the better part of valor was silence. The animal was given 1 gr. of strychnia sulphatis hypodermically and two quarts of boiled water were injected into the udder. It will be noticed that no potassium iodide was used. The writer does not employ iodide of potassium in the treatment of parturient paresis for quite some time. The first time when the writer injected a milk-fever bag without the K. I., it was a case of necessity, not of choice, simply because I did not have the K. I. with me. This cow was up and doing well on the following morning. This opened the writer's eyes a little. The next cow also got up all right without K. I. in the injection. In fact, almost all cows with parturient paresis will get up after one to three injections of either purely boiled water, saline solutions or my favorite saline solution plus one-fourth per cent. of carbolic acid and one-fourth per cent. of glycerine added. After this deviation from the case under dis-

cussion, which at the same time upsets the Danish (that is Dr. Schmidt-Colding's) theory as to the cause of the disease and the specific nature of the treatment, let us return to our case.

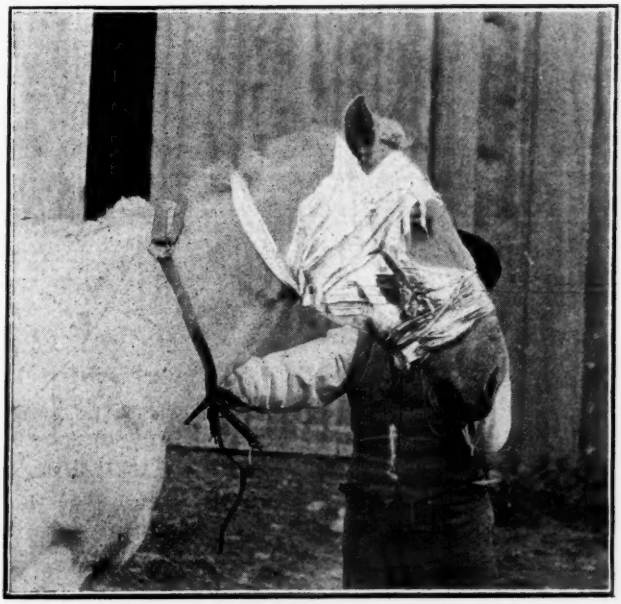
As previously stated, the cow was seen in the morning of the 16th and up and eating that afternoon about 5 P. M. Now, did that cow have parturient paresis (I cannot see where the parturient part comes in), or a disease which closely resembles it? A theoretical discussion of the etiology, potassium iodide treatment versus saline infusions, etc., will appear elsewhere.

COMPLICATED FRACTURE OF THE INFERIOR MAXILLARY BONE.

By A. W. BAKER, V. S., Brasher Falls, St. Lawrence County, N. Y.

In looking over the REVIEW I often see articles on the different fractures treated by veterinarians, but I never have seen one of a nature, so peculiar to itself, as one that came to my personal observation a short time ago in practice.

It was a complicated fracture of the superior extremity of



the mandible, about two centimetres below the condyle and coronoid process. The jaw was turned to one side at an angle of about forty degrees.

The patient was a valuable gray mare, weighing about 1300 pounds, and owned by W. W. Phelps, having caught her head

in a cow stanchel, and, being of an ugly nature, put up a fierce struggle to remove her head, and produced the above injury. She at once had to be thrown to proceed with an examination, which when properly secured I found the foregoing to be the case and had my doubts as to my doing anything of any particular benefit to the animal. The owner, however, insisted on my trying, so I at once proceeded to straighten the jaw to its proper position.

Modus Operandi.—Having got some cotton, bandages and shingles (the only thing available), and, with my assistants, I placed them in the proper position and bandaged them there, to keep the jaws straight and from lateral movement. For a few days the swelling increased rapidly, and I thought perhaps tracheotomy would have to be performed in order to insure freedom in breathing, but gradually the swelling began to go down, and in fourteen days I changed the bandages and splints, allowing a slight increase in movement of the jaws, and in twenty-one days more I removed them entirely, with a very satisfactory result.

She had lost considerable flesh, having been fed on gruel for so long a time, but otherwise she had recovered with no landmarks of any kind that could be observed, and she is now valued at as much as before. To me, a practitioner of forty years, I have never seen a fracture in such a location and of such a nature. I find that the best results are obtained when the splints are *practically* fitted to the injured parts, even though in a crude form or shape.

THE British Government is conducting extensive experiments in South Africa with a view to discovering some means of immunizing horses against the attack of the tsetse fly, the bite of which has so far proved fatal to all animals but man and the ass. It is thought that the process of immunization may be accomplished by the treatment of infoal mares shortly before parturition with the attenuated virus obtained from making cultures from the poison as exuded by the tsetse fly.—(*Breeder's Gazette.*)

MORE TO THE PURPOSE.—One of our contemporaries contains a testimonial from a physician in favor of a certain proprietary laxative. The physician states that he is much pleased with its action, and adds: "I use it freely. It certainly fills a long-felt want." He should add, "and empties a long-filled bowel."—(*Medical Journal.*)

REVIEW OF BIOLOGY.

TOXONES OF TUBERCULIN [*S. Arloing and A. Ducos*].—Erlich has recognized, in diphtheric toxine, two direct products of the bacillus of Loeffler, having different properties; those products were toxines and toxones. The first, having specific morbigenous properties, produce an acute intoxication and are able to neutralize a mathematic quantity of antitoxine. The second give rise to later or slower accidents of diphtheric intoxication; they have their special character. The authors have inquired whether substances analogous to toxones could not be discovered in tuberculin, and have concluded from their researches as follows: (1) Upon healthy subjects, the immediate action of tuberculin can be suppresssed by addition to the tuberculin of a given dose of antituberculous serum; (2) The neutralizing action of this serum is principally marked upon the local effects and less on the general. Animals that survive lose flesh in great quantity; (3) The toxicity remaining in the mixture can be attributed to the toxones of tuberculin; (4) To isolate the toxones of tuberculin, two or three times the serum antituberculous must be added to it; (5) The proportion of the mixture will vary according to the toxicity of the tuberculin and the quality of the serum; (6) A too high dose of serum will add to it its contingent of toxicity.—(*Soc. de Biolog.*)

ACHONDROPLASY AND MYXŒDEMA [*P. Leblanc*].—Achondroplasy is that disease which gives to calves the peculiar physiognomy called bull-dog calves, turtle calves. All the long bones at birth possess a consistency analogous to that of adult animals, which seem to indicate that periostic ossification has not been altered. Cartilages of conjugation are wanting. Besides, achondroplasy of calves is often accompanied with myxœdema and pathydermic cachexia. These coincidences will make one suppose that achondroplasy may be of thyroid origin.—(*Soc. de Biolog.*)

SCLEROSTOMES OF EQUINES [*A. Raillet and A. Henry*].—Recent researches, and particularly those of Looss in Egypt, have increased the number of sclerostomes that live in the digestive canal of equines. Looss has found, besides, three genders in those nematods. The researches of the authors have shown that those new genders (*Cylicostomum*, *Triodontoporus* and *Gyalocephalus*), have, as the gender *Sclerostomum*, numerous representatives in equines of our region. *Sclerostomum* has

three species, which, when adult, are found in the cæcum and large colon of horses: (1) *Scl. equinum*, somewhat common with young forms in parenchymas; (2) *Scl. edentatum*, in some organs with immature forms; (3) *Scl. vulgare*, the most common of the three, found in verminous aneurisms, mesenteric glands, and sub-mucous nodules of the cæcum.—(*Soc. de Biolog.*)

VIRULENCY OF THE BLOOD IN OVINE VARIOLA [*F. J. Bosg*].—The experiments of the author have shown him that in ovine variola the blood of the *pre-eruptive* period is virulent. After cutaneous inoculation, the blood is resorbed, an induration is left, which spreads and gives rise to the formation of a tumor with eruption, strictly localized to its surface; this precedes the generalized eruption by a few days. The blood of variolous animals, taken during the *eruptive* period, is virulent to the same extent as that of the pre-eruptive. Inoculation of the blood, in sufficient quantity, gives rise to a fatal variola, which develops as if it was pure infection, but with characters which appear in proportion with the small number of the parasites in the blood, at least with subcutaneous inoculation; that is, to the point of view of local tumor, localized eruption.—(*Soc. de Biolog.*)

A TALE WITH A MORAL.—Some doctors were talking the other day, says a New York paper, about the case of the Western woman who was indignant to find that her vermiform appendix had been removed when she hadn't expected it. One of them told this story: A man was struck by a car on Broadway. He was removed to a hospital in an insensible condition. After a cursory examinatian a surgeon said: "We had better operate at once for appendicitis." The patient was stripped in order that he might be prepared for the ordeal, and this legend was found tattooed on his chest: "In case of accident don't operate for appendicitis. It has been removed twice already." Then they concluded that he was only suffering from shock.

VETERINARIANS OF NEW YORK STATE: Dr. Kelly's paper, "Enforcement of Our Veterinary Laws," opens up the subject of quackery in that State and how to wipe it out. Every qualified man should be at the meeting of the State Society on the 9th and 10th inst., and assist in devising ways and means for its accomplishment. A few energetic prosecutions will put the whole band to flight. Besides a very attractive programme is announced in another section of this number of the REVIEW.—("Society Meetings.")

CORRESPONDENCE.

SOME SUGGESTIONS AS TO VETERINARY POLICIES.

CHICAGO, ILL., June 14, 1902.

Editors and Readers of the American Veterinary Review:

For an indefinite period I should like to see each month a page of the REVIEW devoted to brief articles by veterinarians, discussing the illustrations employed, the comparisons made, the typical examples shown, the arguments presented, the fables related, the language used, the replies to usual questions, how much of the technical and scientific side to impart, and all in all the various means and methods the members of our profession have found the most proficient and successful in convincing the farmer, stockman, dairyman, packer and consumer and the laity at large, of the extreme virulence and importance of the various animal diseases, tuberculosis in particular; to gain their coöperation in stamping out the diseases, and to overcome their prejudices against the immediate financial loss to them that might result in employing some of the very radical means we find and will find necessary to carry out in order to effectually and eventually stamp out the disease. To prove the ultimate gain will outweigh the immediate loss. What will appeal most forcibly to them to do their part in this great work.

The campaign against tuberculosis must primarily be one of the education of the people, and whose duty is it to do this but the veterinarian's? For out of the people come the legislators and intelligent legislation, coupled with the public opinion that would naturally and necessarily follow such an education, are the main factors in the promotion of national, state, and municipal sanitary advancement.

It is true that some men have a knack of persuading individuals into believing things that are false, let alone what is true; while others cannot sometimes convince another of what is absolutely certain and proved. The latter appeal to the former to come to their rescue.

Such a solicitation of articles would bring forth a multitude of thoughts and ideas, some, perhaps, simple, yet powerful and never before thought of. Some suggestions will prompt others, and there will be set up an endless chain of psychoses, each helping each other and the selection of the best of these and their various combinations may bring about great results that

will give animal and mankind magnanimous benefit. And believe me to be, sincerely, BURTON R. ROGERS, D. V. M.

A VETERINARY TRIP TO THE PHILIPPINES.

PLAZA HOTEL, ASBURY PARK, N. J., August 16th, 1902.

Editors American Veterinary Review:

DEAR SIRS:—Knowing you to be interested in the veterinary profession in the United States Army, I will briefly record a trip to the Philippines, some experiences there, and return.

I sailed from San Francisco on Aug. 22d, 1900, with 722 head of stock, and on the journey to Kobe, Japan, lost about 15 cases of pleuritis and pneumonia. My horses had come up from Arizona, and as I sailed the northern route the horses upon the upper two decks were exposed to the cold winds. I unloaded at Kobe, Japan, and, after resting the horses for eight days, proceeded through the Inland Sea and China Sea to Manila, P. I. At Manila we received orders to proceed to Pasacao, on the Gulf of Ragai, and unload one squadron, the 2d Squadron to be unloaded at Legaspi.

At Pasacao I had to jump the horses overboard and swim them (two at a time) about one and one-half miles to the beach. I received telegraphic orders to leave the transport *Strathgyle* myself Nov. 8th, and proceed with the first squadron to headquarters at Nueva Cacéres, P. I. Dr. Welch, my assistant, proceeded on with the 2d Squadron to Legaspi.

The trip from Pasacao to Nueva Cacéres was without incident worthy of mention.

During the eight months I was stationed at Nueva Cacéres I was quite busy, having three corrals to look after.

During the first rainy season I had about 300 cases of erythema and cutaneous quittor, but had to operate on only five cases of cartilaginous quittor. I had 9 cases of tetanus, of which 5 recovered. I found 90 per cent. of the native horses glandered, and kept them as much as possible from contact with the U. S. horses.

In February, 1901, I was ordered to proceed to Iriga and the posts in that sub-district to inspect and report upon the condition of the horses there. I found but two cases of glanders, which, upon my recommendation, were promptly destroyed. In June, 1901, I was ordered to San José de Lagonoy. On my arrival there, Dr. F. F. Johnson, Post Veterinarian, reported eight cases of glanders. I inspected the animals and agreed in the diagnosis. I then malleined all the horses at that post and

five adjoining posts and the result was 80 cases. The Commanding Officer of the regiment refused to believe the disease was glanders and ordered me to treat the animals. I explained the danger to him and promptly started a letter of protest to the Adjutant-General, U. S. A., through military channels. Shortly after, I received orders to shoot the glandered animals, and the incident closed.

In September, I was ordered to the 3d Squadron at Legaspi, to look for glanders. While crossing the Gulf of Lagonoy on a launch, the captain in trying to find a new passage between two islands, grounded the launch on a coral reef and we had to wait seven hours for the tide to rise. In the 3d Squadron I found but four cases of glanders, but during October and November I found many cases of surra, about which the B. A. I. has recently published very edifying bulletins.

During the first week in December, I took to my bed with amœbic dysentery, and was sent to Manila for treatment. As it was a case of leave the country or die, I was sent to the U. S. A. General Hospital at Presidio, San Francisco, arriving there May 24th, 1902. After a month there, I was granted leave of absence, and am now here trying to recuperate (but at the end of the week will return to Pine Meadow, Conn.

S. GLASSON,
Vet. 1st Class, 9th U. S. Cav'y.

A HEALTHY SIGN OF THE TIMES—INCIDENTALLY A TRIBUTE TO A VETERINARY SCHOOL THAT IS COMING TO THE FRONT.

CHICAGO, ILL., June 14, 1902.

Editors American Veterinary Review :

DEAR SIRS:—It was indeed a pleasure to read the following clipping from a paper of recent date regarding the commencement exercises of the Iowa State College, one of the foremost industrial and agricultural institutions of the country, showing what a prominent place veterinary education is taking :

"—— sixty-seven degrees were conferred last night by Dr. Beardshear as follows :—In general and domestic science, ten ; civil engineering, six ; electrical engineering, six ; agriculture, nine ; VETERINARY MEDICINE, EIGHTEEN ; mining engineering, one ; mechanical engineering, six ; science, eight ;"——

More than twenty-five per cent. of the total number graduated ! An unprecedented record is established. With the exception of mining engineering, it is the youngest course in the school and had for a long time been considered as only a minor department. It is interesting to note in this connection that it

is true, notwithstanding the fact that the members of this class were subjected to much higher entrance matriculations than any class heretofore, and that the graduation requirements were raised considerably and the curriculum and the work between was increased, made more thorough both practically and theoretically, and hence much more difficult. One who has had any experience with Dr. John J. Repp, knows that he is one of the professors in this institution who, in the terms of the popular vernacular of the general student body, "*cannot be worked.*"

The student receives only what he merits, and unless he reaches a definite standard, and it is not a low one, cannot pass. The financial resources from tuition are *nihil* and not considered, not being relative to the success of the department. The doctor is to be commended in this regard. The perusal of such a policy shows plainly the greater proficiency in the end attained by the graduate, and later the veterinarian, who will be one among the many who are judged by the people at large and to the particular community to which he may go as a representative of the veterinary profession, happily changing the unfortunate previous view, perhaps caused by a lone eccentric "Quack," and to whom veterinarian in these modern times or at any time is decidedly a misnomer. BURTON R. ROGERS, D. V. M.

Bureau Animal Industry.

VETERINARY POSITIONS IN THE PHILIPPINES.—The United States Civil Service Commission announces that on September 30, 1902, an examination will be held at the places mentioned in the accompanying list for the position of expert in animal industry, in the Philippine Service, at a salary of $2,500 per annum. Applicants should be graduates of veterinary colleges, and have a good knowledge of animal breeding and husbandry. Knowledge of the Spanish language will also receive consideration in selection for appointment. Age limit, 18 years or over. From the eligibles resulting from this examination it is expected that certification will be made to the position of expert in animal industry, in the Philippine Service, at a salary of $2,500 per annum, and to other similar vacancies as they may occur in that service. Persons who desire to enter this examination should at once apply to the United States Civil Service Commission, Washington, D. C., for application Forms 304 and 375, which should be properly executed, including the medical certificate in Form 304, and filed with the Commission at the earliest practicable date.

SOCIETY MEETINGS.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting was called to order by President William Herbert Lowe at 8.30 P. M., August 11, 1902, when Dr. David Machan was chosen Secretary *pro tem.* The following members answered to their names on roll-call: Drs. William J. Reagan, David Machan, Harry J. Berry, William H. H. Doty, William C. Ferguson, T. J. Cooper, M. A. Pierce, John H. Degraw, William H. Lowe, Jr., William Herbert Lowe, Paterson; J. Payne Lowe, R. O. Hasbrouck, Passaic; George W. Pope, Athenia; William J. Fredericks, Delawanna.

A telegram was read from Dr. William C. Berry, of Bloomingdale, expressing his inability to be present.

The minutes of the last meeting were read and approved.

The President called for the report of the Committee on By-Laws and Code of Ethics. Drs. Ferguson and Reagan, of the committee, reported that the By-Laws and Code were in course of preparation, but not yet completed, when, upon a motion made by Dr. Hasbrouch, the adoption of the same was laid over until the next meeting.

Dr. J. Payne Lowe, chairman of the Committee on Schedule of Fees, presented a carefully prepared report, signed by all members of the committee (Drs. J. Payne Lowe, William J. Fredericks and John H. Degraw), which upon motion of Dr. Reagan was fully discussed, and schedule, amended, adopted by a unanimous vote as amended, and the schedule was ordered printed, and a copy furnished each member, all members agreeing to govern themselves by the said schedule.

The report and schedule as finally adopted is as follows:

REPORT OF COMMITTEE ON SCHEDULE OF FEES.

Mr. President and Gentlemen:

The circumstances under which veterinary services are rendered vary greatly, and while we have made up and will submit a schedule of rates to be charged, we believe practitioners should use discretionary power in charging. Some men can command larger fees than others; men of reputation and experience more than young veterinarians. We should adopt no radical tariff of fees that will make us or our services unpopular with the public, or that will have a tendency to cause them to do without our services and to resort to empirical measures.

Our services are sought for as a rule for commercial reasons. We not infrequently treat very valuable animals. As a rule, however, most of us are called upon to save the life of a $200 horse; to restore to usefulness a $75 lame horse; to assist a $50 or $60 cow at the time of parturition. True, quite a few animals are treated where this does not obtain. The family horse, on account of his docile qualities, is often treated to an extent not in keeping with his market value, or occasionally it's an old animal that has been pensioned off until of necessity he is humanely destroyed. Or, again, in canine practice, it is often a matter of sentiment, so you see in practice it is not what we should receive for some fancy operation skillfully performed, but we must keep within practical bounds: in other words, the value of the animal treated must be considered. In cases covering a long period of time or terminating unfavorably it is not only fair, but it is policy some times to make concessions. The volume of work we do for a client should modify the fees; or, again, poor people should be charged leniently or in extreme cases not charged, while those able to pay should be charged the full fee.

Your committee does not believe that there is any member of the Passaic County Veterinary Medical Association who would lower his dignity or undermine his brother practitioner by under-charging for his professional services, and the schedule of fees we have made up is merely as a guide to fellow-members, as to what we believe to be proper charges, and we respectfully submit it for your consideration.

SCHEDULE OF FEES.

General Practice.

Single visit in the city, $2.
Ordinary visits within the city, $1 to $2.
Ordinary visits outside the limits of the city, $2.50 and mileage.
Mileage at the rate per mile (according to the number of miles) 25 to 50 cents.
Advice given each additional animal at same visit, 50 cents to $1 extra.
Visits after 9 P. M., or before 7 A. M., or in haste, or in extraordinary circumstances, to be charged double.
Remaining in attendance all night, $10 and upwards.
Detention in addition to visit, per hour, $1 to $2.

Surgical Practice.

Ordinarily, visits the same as general practice, or double if surgical dressings, etc., are applied.
Minor operations, $1 and upwards.
Dressing abrasions, sores, etc., $1 and upwards.
Suturing and dressing wounds (trifling in character), $2 and upwards.

Blisters applied, $2 and upwards.
Insertion setons, $2 to $3.
Phlebotomy (jugular), $2 to $3.
Major operations, $5 and $10 and upwards.
Suturing and dressing wounds (serious in character), $5 and upwards.
Neurectomies { Plantar (high or low), $10 per foot and upwards. Median, $15 per foot and upwards. Tibio-peroneal, $15 to $25.
Operations for the removal of champignon, $10 and upwards.
Amputation of the penis, $10 and upwards.
Tracheotomy, $5 and upwards.
Use of the actual cautery, $5 and upwards.
Fractures (setting of fractured limbs, etc.), $2 and upwards.
Castration of the male—

Single horse (normal)	$10.
Two horses "	$15.
Three " "	$20.
Four " "	$25.
Cryptorchid,	$25.
Bull,	$ 3 to $5.
Dogs and goats,	$ 2 and upwards.
Cat,	$ 1 and upwards.
Pigs (single),	$ 1 and upwards.

Each additional pig, 50 cents.

Ovariotomy—
Mare, $25.
Cow, $10.
Bitch or Cat, $5.
Sow, $3. Each additional animal, $1.

Obstetrical Practice—
Delivering fœtus, dystokia cases, by natural passages, mare $10; cow, $5; smaller animals, $2 and upwards.

Cæsarian Operation—Mare or cow, $10 and upwards; smaller animals, $5.

Embryotomy—Mare or cow, $10 and upwards.

Removal Placenta—Mare or cow, $3 and upwards.

Replacing Everted Uterus—Mare $5 and upwards; Cow, $3 and upwards.

Uterine Douches—$2.

Dental Operations.

Filing molar teeth (under ordinary circumstances)—One horse, $2; two horses, $4. In large stables after the first two horses, $1 per head.
Cutting elongated molars, $3 to $5.
Cutting incisors, $3.
Extraction wolf teeth, 50 cents each.
Extraction temporary incisors, $2,
Extraction molars, $5 and upwards.
Trephining sinuses, $10 and upwards.

Miscellaneous.

Consultation in all cases, $5 and up.
Examination of horses for soundness, $5 each.

Post-Mortem examinations, $5 each.
Chemical, microscopical and bacteriological examination of urine, milk, etc., $5 and upwards.
Chemical analysis in cases of poisoning, $5 and upwards.
Opinion as an expert, $5 and upwards.
Professional certificates, $2 and upwards.
Assistant surgeon is entitled to a fee equal to one-half of that charged by the surgeon.

Office Practice.

Advice, $1.
Advice by letter or telephone, $1 and upwards.

Medicines.

Liniments, lotions, solutions, mixtures, etc., 50 cents to $1.
Ointments, 50 cents to $1.
Powders, per package, 50 cents to $1.

Signed by the Committee, { J. PAYNE LOWE, *Chairman.*
WILLIAM J. FREDERICKS,
JOHN H. DEGRAW.

On motion by Dr. Hasbrouck, seconded by Dr. Pierce, the date of the regular monthly meetings was changed from the second Monday evening of the month to the first Tuesday evening of each month, except in the month of September, when the regular meeting shall be held on the third Tuesday evening.

President Lowe stated that the AMERICAN VETERINARY REVIEW, in the August number, had given three pages of its space to a report of the organization and the proceedings of the Passaic County Veterinary Medical Association, and an editorial that would make every veterinarian in Passaic county feel proud that he belonged to the local organization.

The President called the attention of the members to the fact that the State Association had at its last meeting appointed a Minneapolis party committee of which Dr. T. E. Smith, 309 Barrow Street, Jersey City, is chairman, and that the County Association should be represented at the meeting of the American Veterinary Medical Association at Minneapolis, and that any member, or members, that could go were invited to join the party going from this State on Saturday, August 30th. Dr. Cooper asked the President to represent the local organization, and upon his motion Dr. Lowe was elected the official delegate to the Minneapolis meeting.

It was also the sense of the meeting that the County Association should be represented at the forthcoming annual meeting of the New York State Veterinary Medical Society, to be held in Brooklyn, September 9th and 10th. Dr. Pierce moved that

the Chair appoint delegates to the said meeting. The Chair stated that he would appoint as such delegates such members as expected to be able to attend the meeting. After conference the Chair appointed delegates as follows: Dr. J. Payne Lowe, Dr. William H. Lowe, and Dr. William C. Ferguson.

The President requested practitioners who have students with them to advise them that the State Board of Veterinary Medical Examiners, under the law, would only recognize diplomas from colleges with a curriculum of at least three years.

On motion, meeting adjourned.

DAVID MACHAN, *Secretary pro tem.*

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting was held at Hotel Hartford, in Hartford, Tuesday, August 5, 1902.

The President, Dr. A. Hyde, being absent, the meeting was called to order by Second Vice-President Dr. Harrison Whitney, at 3 o'clock. Seven of the 39 members responded to roll-call, as follows: Drs. L. B. Judson, of Winsted; P. F. Finnegan, of Hartford; E. C. Ross, of New Haven; C. R. Witte, of New Britain; Harrison Whitney, of New Haven; Geo. H. Parkinson, of Middletown, and B. K. Dow, of Willimantic.

Visitors:—Drs. G. W. Loveland, of Torrington, and Fred F. Bushnell, of Winsted. Also reporters of the Hartford *Times* and *Courant*.

The minutes of the last meeting were read and approved. It was voted to order 25 certificates of membership for the Association, and that the Secretary procure the same. It was voted to lay Article IV of the By-laws on the table until the annual meeting. The report of the Treasurer showed a balance of $24.

Dr. Fred F. Bushnell, of Winsted, and Dr. G. W. Loveland, of Torrington, presented their names for membership in the Association. Their names were referred to the Board of Censors for their action.

The President, Dr. Andrew Hyde, formerly of Norwich, now employed in the United States Bureau of Animal Industry and located at Sioux City, Iowa, presented his resignation as President of the Association, which was accepted.

It was voted to hold the annual meeting of the Association at Hotel Hartford, in Hartford, the first Tuesday in February, 1903, at 3 o'clock.

Dr. Ross suggested that the President select three subjects for discussion at the next meeting. The President selected the following cases: (1) "Canine Distemper," (2) "Azoturia," (3) "Scrotal Hernia."

The matter of papers to be read at next meeting was left with the Secretary.

After discussing several interesting cases and talking over various matters pertaining to the profession, the meeting adjourned. B. K. Dow, V. S., *Secretary.*

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

TWELFTH ANNUAL MEETING, WILSON BUILDING, PIERREPONT STREET, NEAR FULTON STREET, BROOKLYN, N. Y., SEPTEMBER 9TH AND 10TH, 1902.

Officers, 1901–1903.—President—James Law, Ithaca; Vice-President—James L. Robertson, New York City; Secretary-Treasurer—Wm. Henry Kelly, Albany.

Censors.—Charles Cowie (Chairman), E. B. Ackerman, Harry Sutterby, H. D. Gill, E. B. Ingalls.

Committees.—Executive—James Law, (Chairman), James L. Robertson, George H. Berns, Wm. Henry Kelly, Charles Cowie. Legislative—Wm. Henry Kelly (Chairman), James Law, C. D. Morris, Arthur O'Shea, Roscoe R. Bell. By-Laws—Geo. H. Berns (Chairman), J. W. Corrogan, Wm. Henry Kelly, *ex officio.* Arrangements—Roscoe R. Bell (Chairman, Geo. H. Berns, James L. Robertson, E. B. Ackerman, Wm. Henry Kelly, *ex officio.*

The session will be held in the Wilson Building, Pierrepont Street, near Fulton Street, Brooklyn, N. Y. on September 9th and 10th, 1902, and will convene on Tuesday, Sept. 9th, at 10 A. M., when an address of welcome will be extended to the association on behalf of the City of New York, by Hon. Richard Young, Commissioner of Parks, Boroughs of Brooklyn and Queens, which will be responded to by President Law.

After the business of the society has been disposed of there will be the following:

PRESENTATION OF PAPERS.

"Veterinary Dentistry," by Dr. Robert W. Ellis.

"Retained Placenta," by Dr. W. L. Williams.

"The Etiology of Shoe-Boil," by Dr. Geo. J. Goubeaud.

"Syrup as a Food for Horses," by Dr. Geo. H. Berns.
(Title to be announced later), by Dr. G. S. Hopkins.
(Title to be announced later), by Dr. Pierre A. Fish.
"Interstitial Hepatitis in Swine," by Dr. Veranus A. Moore.
"Diagnosis of Anthrax," by Dr. Veranus A. Moore.
"Veterinary Dentistry," by Dr. T. S. Childs.
"The Enforcement of Our Veterinary Laws," by Dr. Wm. Henry Kelly.

Other papers will probably be reported to the Secretary before the day of meeting.

Adjournment at 1 P. M. for lunch. Afternoon session reconvenes at 2 P. M.

Adjournment at 6 P. M. for dinner. Evening session at 8 P. M.

On Wednesday, 10th, at 8 A. M., the Society will meet at the Infirmary of Dr. George H. Berns, 74 Adams Street, to engage in the

SURGICAL CLINIC.

Ovariotomy in the Mare.
Ovariotomy in the Bitch, median line and flank.
Extirpation of the Membrana Nictitans from the Horse.
Radical Operation for Toe-Crack.
Radical Operation for Quarter-Crack.
Removal of Lateral Cartilage.
Arytenectomy.
Tibio-Peroneal Neurectomy.
Plantar Neurectomy, standing.
Peroneal Tenotomy.
Opthalmoscopical Demonstrations.
New Method for Suturing Shoe-Boil after Extirpation.
Demonstration of the Use of Stocks.
Fixation of the Knee for Dropped Elbow.
Operations on the Tail.
Dental Operations.
Median Neurectomy.
Castration of the Stallion, standing.
Castration of Cryptorchid (Ridgling).
New Operation for Poll-Evil.

Demonstrations of Casting, and many others, if time will permit.

The operators who have agreed to be on hand are Drs. Geo. H. Berns, Charles E. Clayton, W. L. Williams, E. B. Ackerman, Geo. G. Van Mater, Charles S. Atchison, C. E. Shaw, H.

D. Gill, William F. Doyle, Elishu Hanshew, Joseph R. Hodgson, R. W. McCully, Robert W. Ellis, J. E. Ryder, R. E. Waters.

The Clinic will continue until 3 P. M., when trolley cars will be at the door to convey members and guests to Coney Island, where a shore dinner will be tendered by the New York City members. A light lunch will be served at 12 noon.

The headquarters will be the Hotel Clarendon, Fulton, Tillary and Washington Streets.

NEWS AND ITEMS.

DR. WALTER LINCOLN BELL (McGill, '98), of Brooklyn, N. Y., was married July 7 to Mrs. Evelyn Van Giesen, also of Brooklyn.

THE unveiling of Pasteur's statue took place on August 3 at his birthplace, Dole, Jura. The occasion was celebrated with extensive decorations and laudatory orations.

DR. JOHN W. CORRIGAN, of Batavia, N. Y. (N. Y. S. V. C.), was in New York the first half of August, taking the New York Board of Health's anti-rabic treatment, he having been bitten in the nose by a supposed rabid dog.

DR. W. L. WILLIAMS, professor of surgery at the New York State Veterinary College, has been on the "complaining list" during the summer, and consequently will not be able to attend the Minneapolis meeting. He will, however, be on hand at Brooklyn, prepared for anything that may come his way.

THE international automobile race from Paris to Vienna, a distance of 871 miles, had 137 starters, 78 of which managed to complete the course. An ambulance followed the vehicles, and it was estimated by the Paris correspondent of the New York *Tribune* that the event was "as disastrous to life and limb as a military battle."

DR. SAMUEL GLASSON, U. S. Army, recently returned from the Philippines, on sick leave, visited the REVIEW office during August. He reported that while *en route* from Manila to the San Francisco hospital, he was handsomely entertained at Honolulu by Dr. W. T. Monsarrat. An interesting account of the doctor's experiences in the orient is to be found in this number of the REVIEW.

WILLIAM M. BEARDSHEAR, A. M., LL.D., President of the Iowa State Agricultural College at Ames, died the early part of August and the State of Iowa lost one of its most prominent

and useful men. During the eleven years of his administration the college increased more than three-fold in number of students and teaching force. In equipment it has grown from a few poor buildings to its present large proportions, and the recent legislative appropriations will place it among the best in the country. In the past few years he has brought the veterinary department to a prominent position among educational institutions, and his loss will be greatly felt by his fellow-workers, and the cause of industrial education has lost one of its great leaders.

THE FINAL OVERTHROW OF KOCH'S THEORY RESPECTING THE NON-COMMUNICABILITY OF BOVINE TUBERCULOSIS TO HUMAN BEINGS.—Koch's labored effort to prove that bovine tuberculosis cannot be communicated to human beings was practically wholly based upon the experiments from which he claimed to have demonstrated that human tuberculosis could not be communicated to animals of the bovine species. As has been so often pointed out, the facts which he presented were not conclusive, if proved; for it might easily be possible that bovine tuberculosis could be communicated to human beings even though human tuberculosis could not be communicated to calves; but Arloing, a recognized authority, has come forward (*Bulletin de l'Académie de Médecine, and Presse Médicale*) with a carefully studied series of observations which show conclusively that human tuberculosis may be communicated to various species of lower animals. In his experiments, he produced tuberculosis in twenty-three animals, all of which were pronounced by Koch to be non-tubercularizable by infection from human beings. Of these animals, there were three calves, six sheep, ten goats, and three donkeys. Arloing further shows by careful analysis of the observations of Koch, that seven out of thirty-four animals inoculated by him with human virus were actually infected. Every sanitarian will be glad to welcome this thoroughgoing exposure of Koch's most ill-advised and mischievous announcement.—(*Modern Medicine.*)

NEW AND OLD HAY AND OATS.—Several correspondents have of late inquired why it is that veterinarians and successful horsemen generally advocate the use of old oats and hay for horses at this time of the year. One inquirer, for instance, states that "it is well known that there is more nourishment in new oats and new hay than in old," and that it seems to him "the sheerest folly not to take advantage of that fact." We are not so certain that it is a fact after all. Indeed we are inclined to

think that the statement quoted is not true. In any case, taking up the hay first, there are thousands of the eggs of insects and parasites still alive on the stems and leaves of new hay that when taken into the stomach of the horse develop and cause trouble of many sorts. Then new hay just made must go through a variety of sweating or fermenting processes, and surely no one will maintain in the face of what is generally known that such changes in food composition can be good for the digestion of any animal. In the case of new oats the sweating process cuts a most important figure, and the amount of water that is in the grain when new carries no nutriment with it at all. The sweating and subsequent drying of grain takes from it much that is injurious to the equine stomach, and what is more, the food substances in all grain are in a more highly concentrated form owing to the absence of water. Many of the most valuable horses on earth never get a bite either of new hay or oats, and among those are the horses that are required to race, to make their supremest efforts week after week. With regard to other grains, such as rye and barley and wheat, barley alone can be considered as at all a desirable horse food. Rye and wheat have been fed with a measure of success, more especially the latter, as exploited in this journal by Prof. Henry and others, but they are dangerous for the novice to try. Some rye is better than no grain at all for horses, it is true, but it will prove costly provender if it is not fed with the utmost caution in its new state. Too much caution can hardly be exercised in changing from the old to the new crop, and in the case of both hay and oats it is always well to make the transition as gradual as possible by mixing the old with the new and gradually increasing the proportions of the new from time to time until the horses have become thoroughly accustomed to it.—(*Breeder's Gazette.*)

THE PENALTY OF NEGLECTING VETERINARY MEDICINE.—We have often urged upon our readers the precept that it was not wise for practitioners of medicine to fail to inform themselves to some extent in comparative pathology. What comes of such neglect? Ignorance of the connection between disease in the lower animals and disease in man, ignorance even of the existence among human beings of certain malignant diseases of domestic animals. The veterinarians properly insist upon the importance of their work from the point of view of the public health, but seldom so cogently as was recently done by W. H. Dalrymple, M.R.C.V.S., of the Louisiana State University, in a

paper entitled, "The Value of Coöperation in the Sanitary Control of Our Periodic Epizoötics of Anthrax," read before the Louisiana State Medical Society in June, and published in the August number of the *New Orleans Medical and Surgical Journal.* Those of us—and we are not a few—who have seen occasional cases of malignant pustule in the human subject do not need to be told that Surgeon-General Sternberg was in error when he stated in his "Text-Book of Bacteriology" that anthrax did not prevail in the United States, unless, indeed, he used the word "prevail" in a sense that would suggest an ever-present pestilence; but few of us probably are aware of the amount of devastation wrought by the disease in Louisiana and Mississippi. A striking picture of the facts is given by Professor Dalrymple, and his recommendations for restricting ourbreaks are such as must commend themselves to those who reflect upon the situation. But it is not to these features of his very interesting communication that we shall now direct attention, but to the eloquent plea that he makes for comparative pathology as a subject of thought with the medical profession in general. He says he knows of country practitioners who have turned their veterinary knowledge to account in times of anthrax epizoötics by informing the people of their danger and inculcating such sanitary precautions as the complete destruction of the carcasses of animals that have succumbed to the disease and the practice of thorough disinfection; and the results have been brilliant. "But," he adds, "I have heard of others who, on being asked for information, because the victim of anthrax happened to be a mule or a cow, explained with an air of wounded dignity, 'I'm no mule or cow doctor, and don't know anything about it!'" The dignity that needs to be so safeguarded must, we should say, be made of very unsubstantial stuff. The result of such a reply, says the author, has often been that some illiterate person, without any sanitary knowledge whatever, has been called in, and the contagion been permitted to spread broadcast. It does not, he aptly says, indicate the spirit of the true pathologist to disclaim all interest in the diseases of the lower animals, for he "looks upon disease as such, and does not consider the subject that accidentally has become the victim of it." And he is quite justified in deprecating forgetfulness of the fact that "the magnificent strides medical science has taken and the exalted pinnacle to which it has attained in recent years" have been largely owing to the efforts of the veterinarians.—(*New York Medical Journal, Aug. 9.*)

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